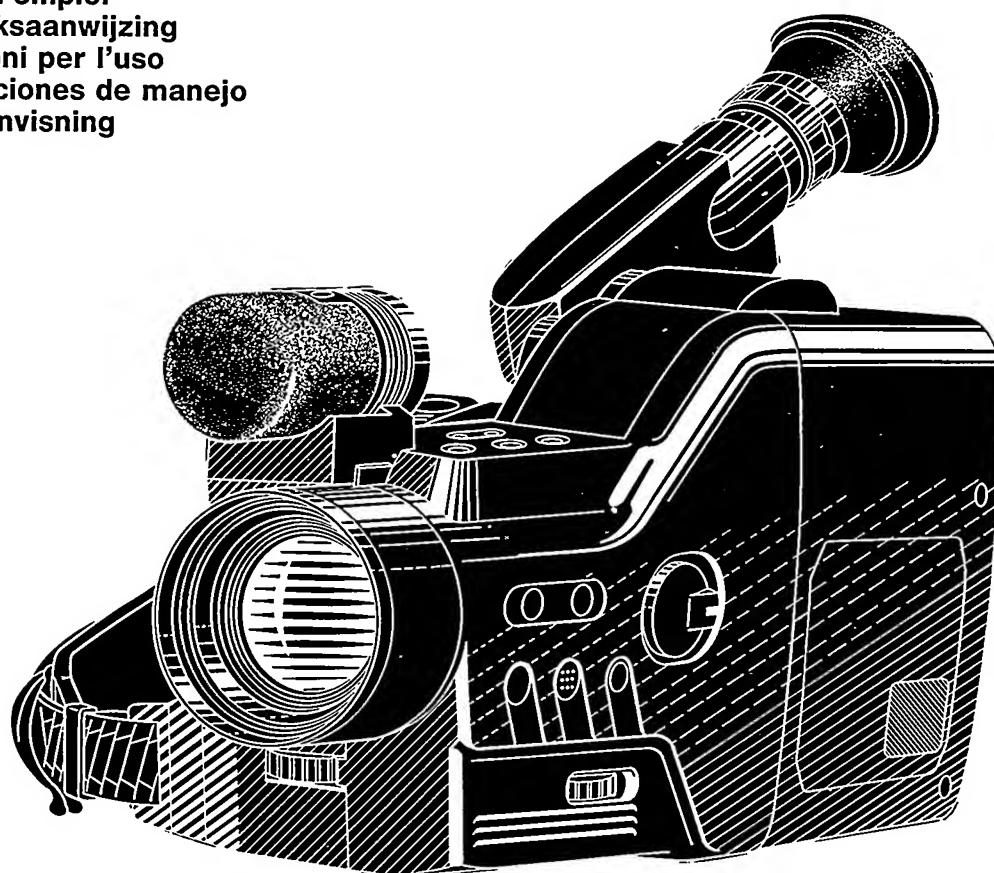


PHILIPS



Operating instructions
Bedienungsanleitung
Mode d'emploi
Gebruiksaanwijzing
Istruzioni per l'uso
Instrucciones de manejo
Bruksanvisning

SVHS
625



EXPLORER

C A M C O R D E R S

VKR9010

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Important

FOR YOUR SAFETY

■ DO NOT REMOVE THE OUTER COVER

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

■ TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

■ WARNING ON BATTERY

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the equipment manufacturer.

Discard used batteries according to manufacturer's instructions.

■ WARNING ON LITHIUM BATTERY

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate.

Replace battery with CR2032, use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

■ S-VHS-C Camcorder

- The rating plate is on the bottom side of the Camcorder.

■ AC adaptor

- The rating plate is on the bottom side of the unit.
- This model conforms to the EC directive (for radio interference) 87/308/EEC.

■ IMPORTANT (In the United Kingdom)

Mains Supply (240 V, 50 Hz only)

Do not make any connection to the larger terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.

Brown wire to terminal coded L (Live) or coloured Red.

If in doubt — consult a competent electrician.

Note:

We recommend that you should disconnect the AC cord from the outlet.

Copyright laws

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

Cautions

Please read these cautions before operating the S-VHS-C Camcorder, so that you will obtain the best results from your Camcorder.

Video head clogging:

The video heads are the means by which the S-VHS-C Camcorder places picture signals on the tape during recording, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound of which is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such symptoms occur, have the S-VHS-C Camcorder checked by qualified service personnel.

If condensation forms inside the S-VHS-C Camcorder:

Condensation (dew) forms when warm air comes in contact with a cold object, for example on a window in a heated room in winter. Condensation may form in the S-VHS-C Camcorder and damage the tape and the video heads, if:

- The S-VHS-C Camcorder is in a room where the heater has just been turned on.
- The S-VHS-C Camcorder is in a room with steam or high humidity.
- The S-VHS-C Camcorder is brought from cold surroundings into a well-heated room.
- The S-VHS-C Camcorder is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.
- When condensation has formed inside the S-VHS-C Camcorder, the "DEW" indication in the electronic viewfinder (EVF) will flash and a few seconds later, the unit will turn itself off to protect the tape and the video heads.

After a while, turn the unit on again and make sure that the Dew mark is not displayed any more. Then, wait about 1 hour before operating the S-VHS-C Camcorder again. Depending on the surrounding conditions, it may take several hours before the S-VHS-C Camcorder can be used again.

- As condensation forms gradually, it may take about 10 — 15 minutes before the S-VHS-C Camcorder turns itself off after a change of working environment.
- In an extremely cold place, condensation may freeze and turn into frost. In this case, it may take quite some time for the frost to melt, turn into dew and evaporate.
- When you bring the S-VHS-C Camcorder from a very cold place, e.g. the ski slopes, into a heated room, keep it in a tightly closed plastic bag or similar to prevent condensation from forming inside the S-VHS-C Camcorder.

Keep the S-VHS-C Camcorder away from only smoke and steam.

Protect the S-VHS-C Camcorder from humidity and dust.

Surrounding conditions:

Use the S-VHS-C Camcorder under conditions where the temperatures are between 0°C and 40°C and where the humidity is between 20% and 80%. To avoid deformation of the outer case or other damaged, do not leave it exposed to direct sunlight for any length of time, also never leave it in a closed automobile.

Keep the S-VHS-C Camcorder away from heaters.

Keep the S-VHS-C Camcorder away from TV sets:

Do not place the S-VHS-C Camcorder near a TV set because it might impair the picture and sound quality of the recorded tape, and/or adversely. Affect the performance of the S-VHS-C Camcorder.

Keep magnets away:

Never bring a magnet or magnetized object such as fluorescent lamps, motors, electric clocks and battery operated toys etc. close to the S-VHS-C Camcorder because this could adversely affect its performance.

Keep the S-VHS-C Camcorder away from areas with strong electric fields:

The picture may become distorted, when the S-VHS-C Camcorder is used in places with strong electric fields, such as near TV or radio antennas.

Never put any object inside:

Never insert any object other than a video cassette into the S-VHS-C Camcorder. If any object is dropped into it or if any liquid is spilled into it, consult qualified service personnel. Operating it with some foreign matter inside may cause fire or electric shock.

No fingers inside:

Touching internal parts of the S-VHS-C Camcorder is dangerous and may cause serious damage to the S-VHS-C Camcorder. Do not attempt to disassemble it. For internal inspection, adjustment or repairs, consult qualified service personnel.

Handle with care:

Never drop the S-VHS-C Camcorder or expose it to strong physical shocks. Shocks during use may result in abnormal operation and performance.

Appearance of smear distortion:

Smear distortion is a peculiar characteristic of the CCD device. It appears as a bright vertical stripe on the screen when the S-VHS-C Camcorder is aimed at spot lights or other bright lights and light reflecting objects. To avoid this problem, make sure not to aim the S-VHS-C Camcorder at such strong light sources during shooting.

Cover the lens with the cap after shooting.

Keep the S-VHS-C Camcorder away from strong light:

Do not expose the S-VHS-C Camcorder to strong light, because the heat from it may cause deformation or other damage.

When the S-VHS-C Camcorder is not being used:

Remove the video cassette and turn the S-VHS-C Camcorder off with the POWER switch.

Keep insecticide spray away:

Never spray things like insecticide on the lens and body of the S-VHS-C Camcorder. Also, never leave rubber or vinyl objects in contact with any part of it for a long time, because the colour might change and the body surface might be damaged.


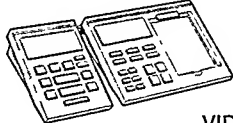
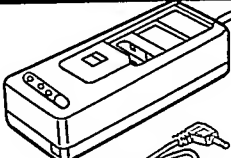
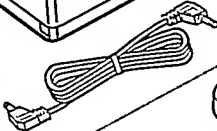
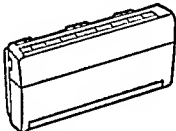
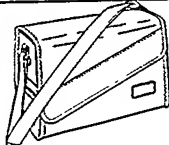


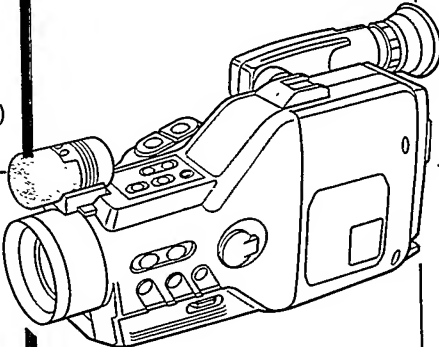


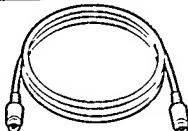
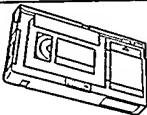
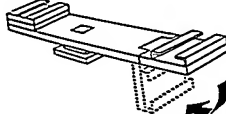
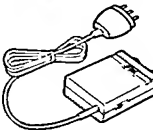
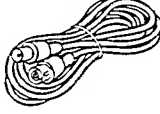
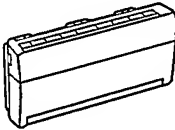
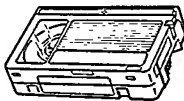


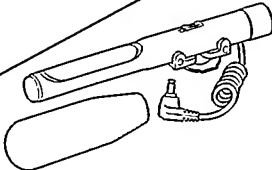

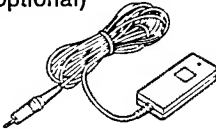
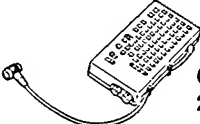
Never place the S-VHS-C Camcorder with the cassette compartment side facing down:

Never use the S-VHS-C Camcorder with the cassette compartment facing down as this might cause uneven winding and slacking of the tape.

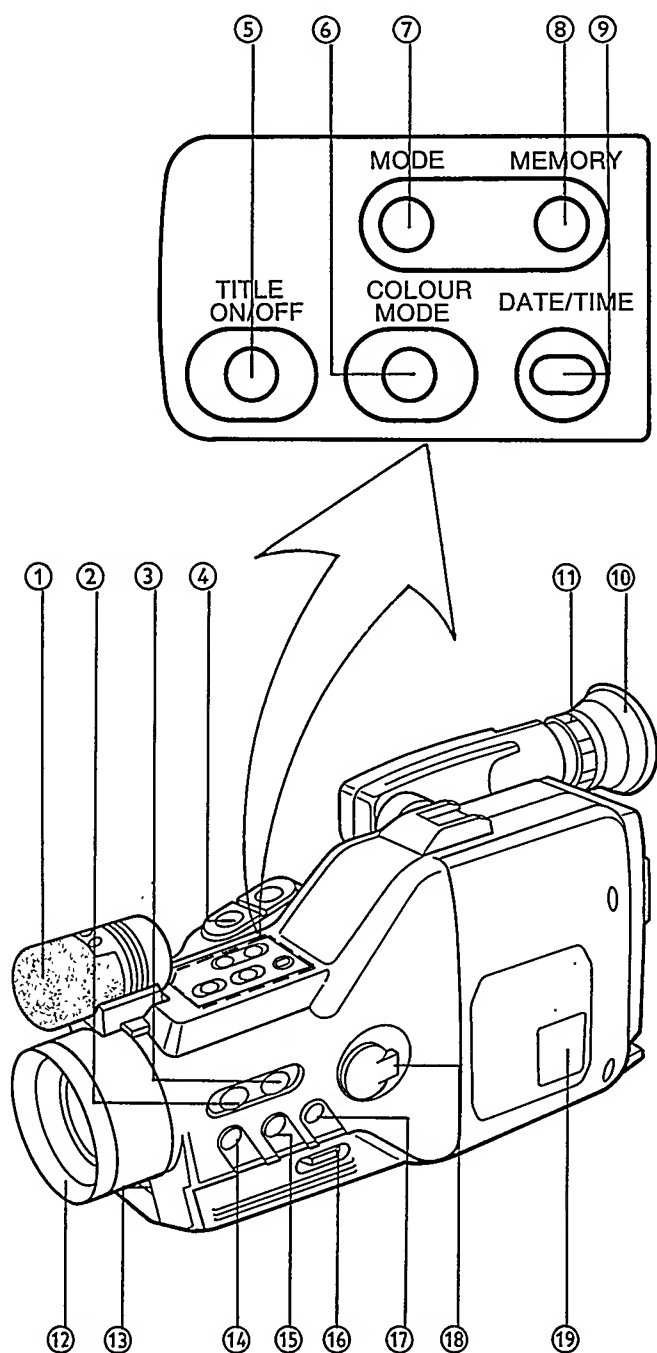
Cleaning the S-VHS-C Camcorder:

- The body of the S-VHS-C Camcorder is made of plastic materials. Never use benzine, thinner or other chemicals for cleaning, because the colour might be changed and the case surface might be damaged.
- Wipe the case and operation panel with a soft, clean cloth. For persistent stains, use a cloth moistened with mild detergent and water, and then wipe with a dry cloth.
- Clean the lens only with a blower brush (used for photo cameras) or a special lens cleaning tissue (used for glasses and cameras).

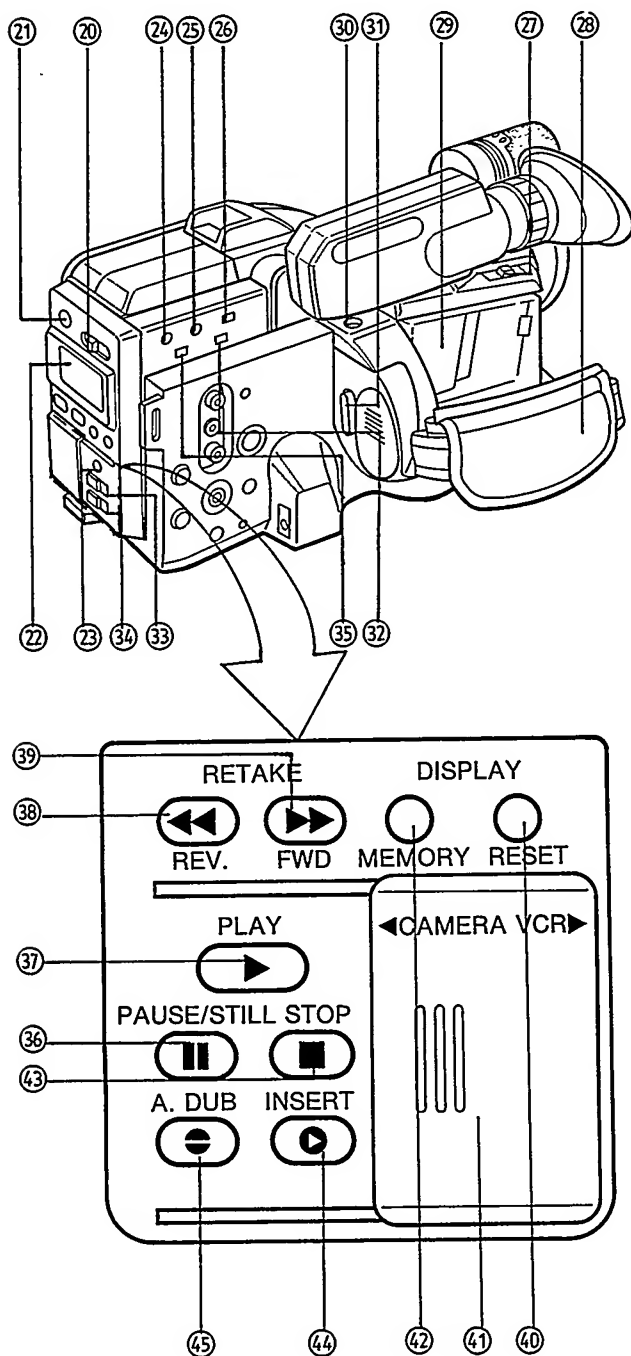
Camcorder accessories

 <p>System carrying case 22AV5185 (optional)</p>	 <p>VIDEO EDITOR Controle module IHP6803 (optional) Memory module IHP6804 (optional)</p>	 <p>AC adapter SBC5420 (supplied)</p>	 <p>Date/time back up battery CR2032 (supplied)</p>	 <p>Battery pack SBC5217 (supplied)</p>	
 <p>Carrying soft bag 22AV5259 (optional)</p>	 <p>VITC-generator IHP6805 (supplied)</p>	 <p>AV output cable (stereo) SBC5510 (supplied)</p>	 <p>Camcorder VKR9010</p>		
 <p>RGB signal converter 22AV5181 (optional)</p>	 <p>Shoulder strap SBC5421 (supplied)</p>	 <p>S-cable SBC5500 (supplied)</p>			
 <p>Cassette adapter 22AV5146 (optional)</p>	 <p>Shoe adapter 22AV5157 (optional)</p>	 <p>RF converter SBC5411 (optional)</p>			 <p>DIN-DIN Coaxial cable (optional)</p>
 <p>Battery pack SBC5217 (optional)</p>	 <p>Video cassette SE-C30 (optional)</p>	 <p>Car battery cord SBC5422 (optional)</p>			
 <p>Universal character generator 22AV5172 (optional)</p>	 <p>Super-directional microphone SBC3070 (optional)</p>	 <p>Shoe adapter</p>			 <p>Pause remote control unit 22AV5114 (optional)</p>
		 <p>Character generator 22AV5156 (optional)</p>			

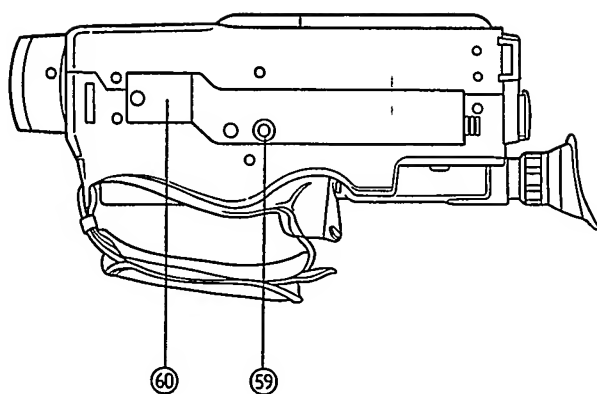
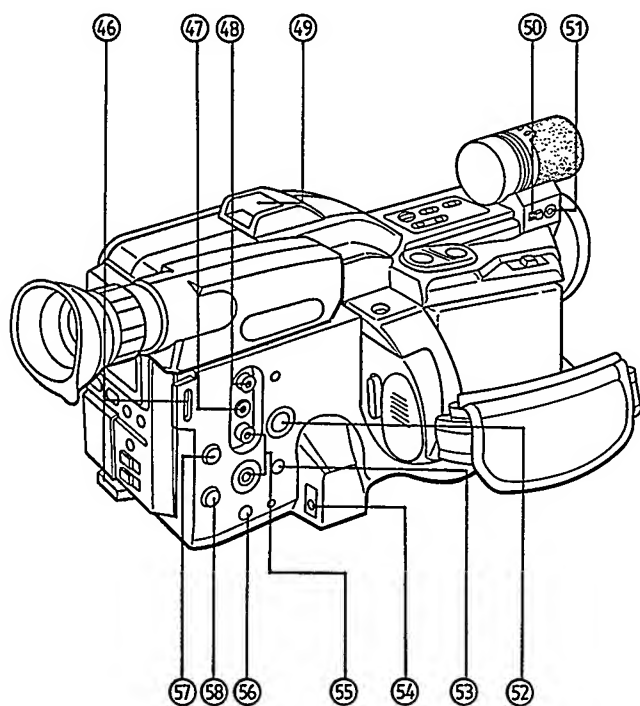
Controls and components



- | | |
|---|------------------------------|
| ① | Built-in stereo microphone |
| ② | ZONE SELECT/PUSH-AF button |
| ③ | FADE button |
| ④ | Power zoom control buttons |
| ⑤ | TITLE FUNCTION ON/OFF button |
| ⑥ | COLOUR MODE button |
| ⑦ | TITLING MODE SELECTOR button |
| ⑧ | MEMORY button |
| ⑨ | DATE/TIME selector button |
| ⑩ | Eye cup |
| ⑪ | Eyepiece corrector control |
| ⑫ | Lens hood |
| ⑬ | Manual focus control |
| ⑭ | FOCUS adjusting button |
| ⑮ | High speed SHUTTER selector |
| ⑯ | IRIS CLOSE/OPEN control |
| ⑰ | WHITE BALANCE button |
| ⑱ | Operation selector switch |
| ⑲ | Cassette compartment |

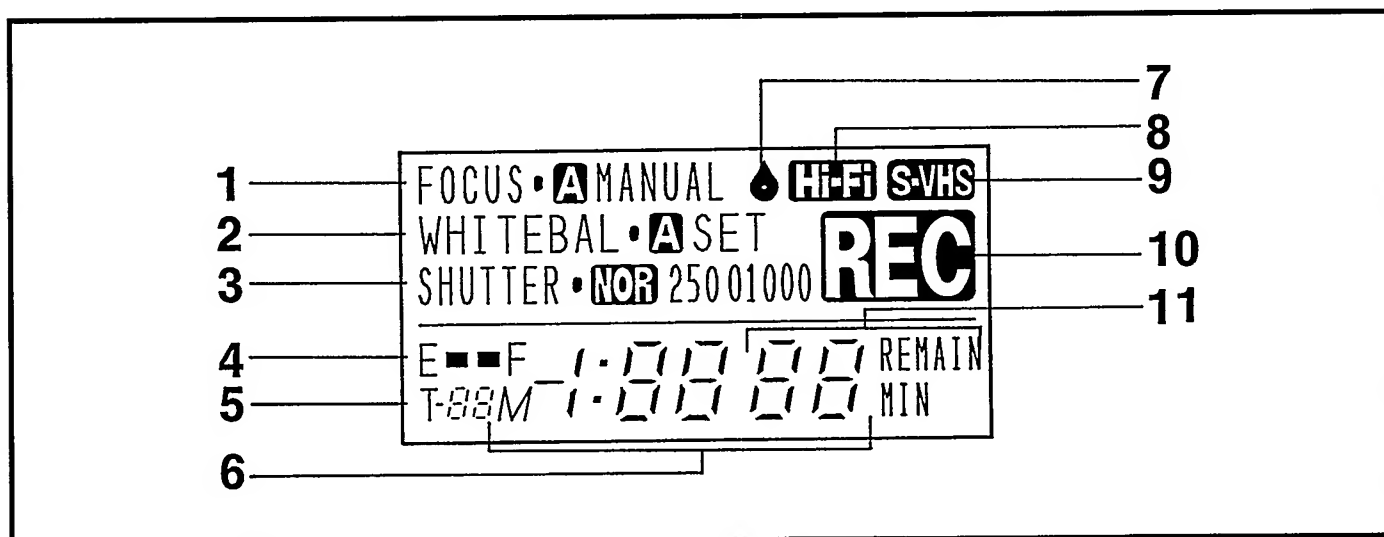


20	POWER on/off switch
21	EJECT button
22	LC display
23	TAPE SELECT button
24	Tracking/date/time SHIFT button
25	Tracking/date/time SET button
26	DIGITAL TRACKING switch
27	Battery eject lever
28	Grip belt
29	Battery holder
30	ON SCREEN DISPLAY button (OSD)
31	Recording start/stop button
32	Audio selector switch
33	Recording speed selector (SP/LP)
34	S-VHS system selector
35	EDIT switch
36	PAUSE/STILL button
37	PLAY button
38	REV (REWIND/REVIEW) button
39	FWD (FAST FORWARD/CUE) button
40	RESET button
41	CAMERA/VCR selector switch
42	DISPLAY MEMORY button
43	STOP button
44	INSERT button
45	AUDIO DUBBING button



- | | |
|----|--|
| ④⑥ | Shoulder strap holder |
| ④⑦ | RF DC output socket |
| ④⑧ | Video output socket |
| ④⑨ | Accessory shoe |
| ⑤⑩ | Filter selector |
| ⑤⑪ | External microphone socket |
| ⑤⑫ | S-Video output socket |
| ⑤⑬ | Remote control socket |
| ⑤⑭ | DC input socket |
| ⑤⑮ | Audio output sockets (L & R) |
| ⑤⑯ | Headphones socket |
| ⑤⑰ | Character generator socket |
| ⑤⑱ | FULL REMOTE socket |
| ⑤⑲ | Tripod mount |
| ⑥⑩ | Battery compartment for auto date/time |

Indications in the LC display



1. Focus mode indications

A : Auto focus
MANUAL : Manual focus

2. White balance indications

A : Auto
SET : manual mode

3. Shutter speed indications

NOR : Normal speed
250 : 1/250 sec.
500 : 1/500 sec.
1000 : 1/1000 sec.

4. Remaining battery power indications

The "—" indications begin to disappear from right to left as the power of the battery pack weakens.

5. Cassette display

6. Counter indications

_M-1:23.45 : Tape counter
-1:23.45 : Used time counter

7. Dew indication (💧)

8. Hi-Fi indications

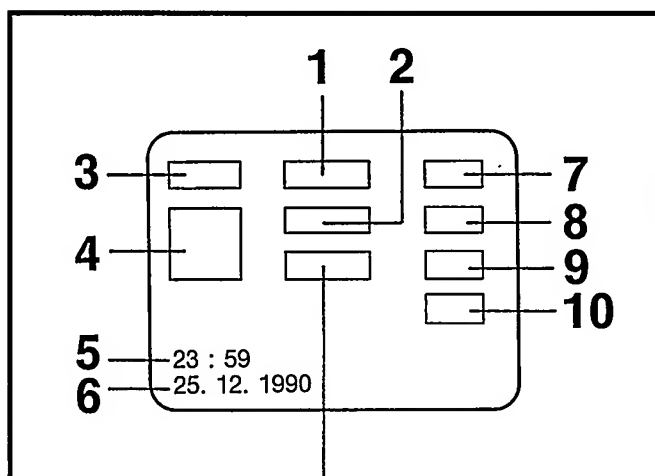
9. S-VHS mode indication

10. Recording indication

11. Tape remaining indication

Indications in the electronic viewfinder (EVF)

The following indications are displayed in the electronic viewfinder (EVF) to inform you of the conditions of the Camcorder.



Warning/alarm indications

	There is little battery power left. The Camcorder will be turned off in a few minutes. Replace the battery pack by a fully recharged one.
	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	During recording, the tape has almost reached its end. Replace the tape with a new one. The indication will remain lit when the tape has reached its end.
	When condensation has formed inside the Camcorder, the "DEW" indication will flash and a few seconds later, the unit turns itself off.
	Video head clogging. See page 2.
	When the battery for title memory and auto date is not inserted, the indication will flash for 10 seconds after the Camcorder is turned on.

1. Remaining battery power/index indications

E — F : The "—" indications begin to disappear from right to left as the power of the battery pack weakens.

INDEX : This indication flashes when a recording is started and it indicates that an index signal is being recorded.

2. Counter indications

M-0:12.34 : Tape counter

1:23.45 : Used time counter

3. Tape remaining indication

R : 18 MIN

4. Digital memory indications

WHT : Colour indication

SCROL↑ : Mode indication (No indication in normal mode.)

5. Time indication

6. Date indication

7. Tape running indications

REC : Recording mode

PAUSE : Recording pause mode, Rec review

▶ : Play mode

|| : Still mode

▶▶ : Fast forward/Cue mode, Retake (in forward direction)

◀◀ : Rewind/Review mode, Retake (In reverse direction)

INST▶ : Insert editing mode

INST|| : Insert editing pause mode

A.DUB▶ : Audio dubbing mode

A.DUB|| : Audio dubbing pause mode

8. Manual white balance indications

— WHITE — : During setting, the "WHITE" indication will flash.

W. SET : Setting is finished.

9. S-VHS system indications

S : S-VHS System

No display : VHS System

Recording mode indications

SP : SP mode

LP : LP mode

10. High speed shutter mode indications

NOR : Normal speed

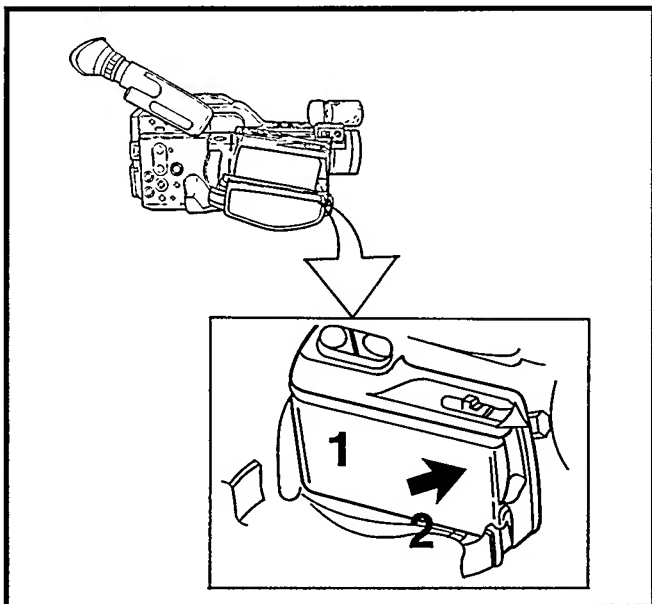
1/250 : 1/250 sec.

1/500 : 1/500 sec.

1/1000 : 1/1000 sec.

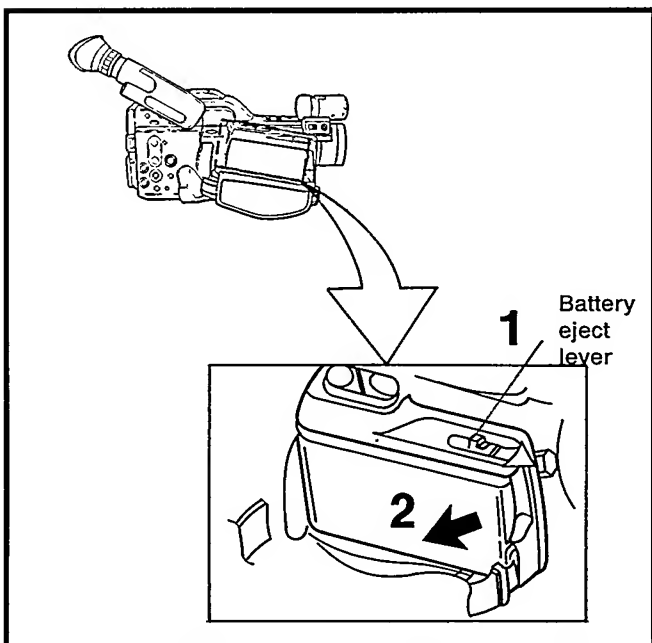
Power supply system

Inserting the battery pack (SBC5217)



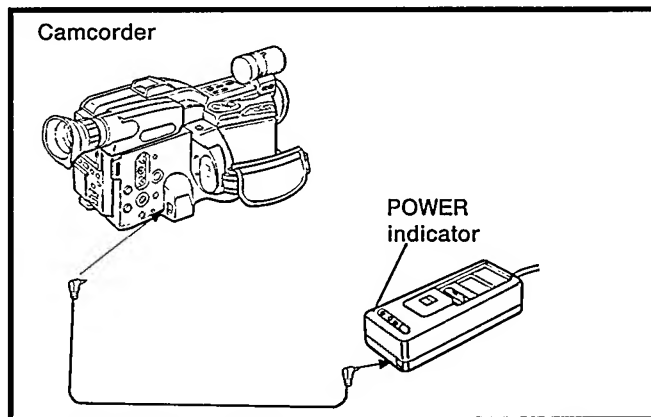
- 1 Align the grooves of the left side of the battery pack and the Camcorder.
- 2 Push the battery pack until it locks with a click.

Removing the battery pack (SBC5217)



- 1 Slide the battery eject lever to remove the battery.
- 2 Pull out the battery pack.

AC adaptor (SBC5420)

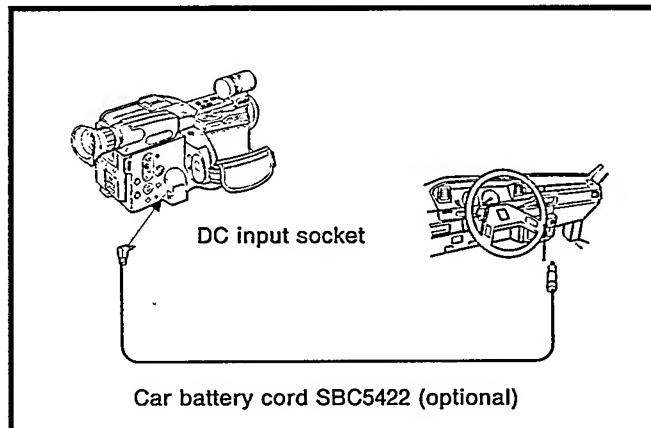


- 1 Connect the DC input cable from the DC output socket on the AC adaptor to the DC input socket on the Camcorder.
- 2 Connect to the mains.

Note:

When a battery pack is attached on the AC adaptor, the Camcorder cannot be supplied with power.

Car battery cord (SBC5422)



- 1 Start the engine and insert the car battery cord into the cigarette lighter socket.
- 2 Connect the other end to the DC input socket on the Camcorder.

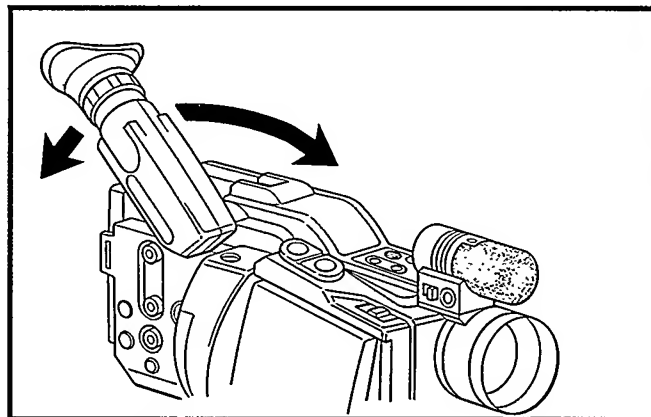
Notes:

- The car battery cord can only be used with 12V DC negative-grounded vehicles.
- Do not start the car engine while the Camcorder is powered by the car battery.

Electronic viewfinder (EVF)

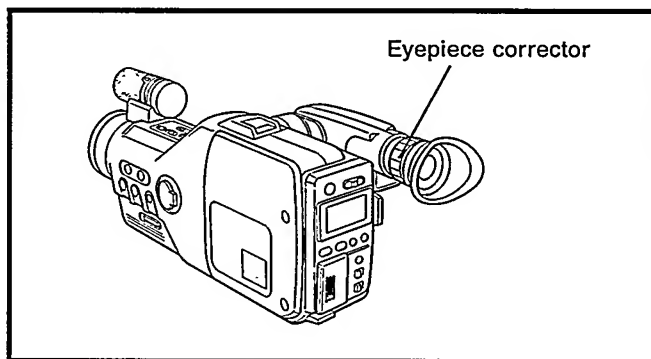
For low-angle shots

The electronic viewfinder (EVF) can be turned upward and forward by a maximum of 180°. This is convenient for taking low-angle shots.



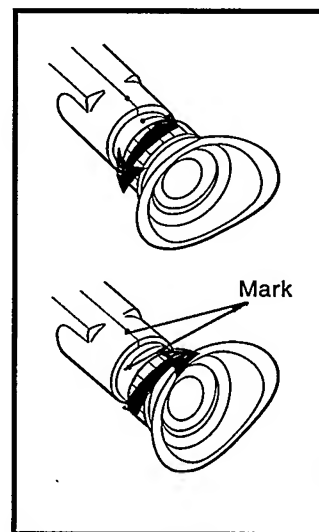
Eyepiece corrector

This control makes it possible for people who wear glasses to adjust the eyepiece to their eyesight.

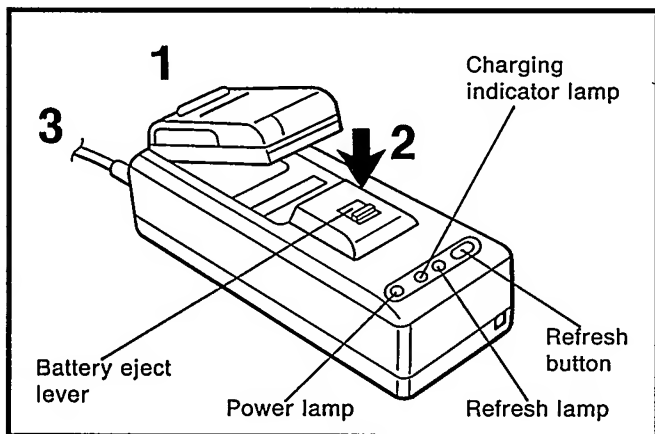


For viewing the EVF with the left eye

- Turn the eyecup counterclockwise to remove it.
- Turn the eyecup so that its longer side faces left. Align the marks, and insert and turn the eyecup clockwise until it locks with a click.



Charging the battery pack



- 1 Align the grooves of the battery pack and the AC adaptor.
- 2 Push in the battery pack until it locks with a click.
- 3 Connect to the mains.

Charging indicator : Lights while charging is taking place and goes off when charging is completed.

Charging time : Approx. 60 minutes.

Note:

The charging time differs depending on the ambient temperature and the condition of the battery pack.

Recording time for the Camcorder : Approx. 50 minutes.

Note:

The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc.

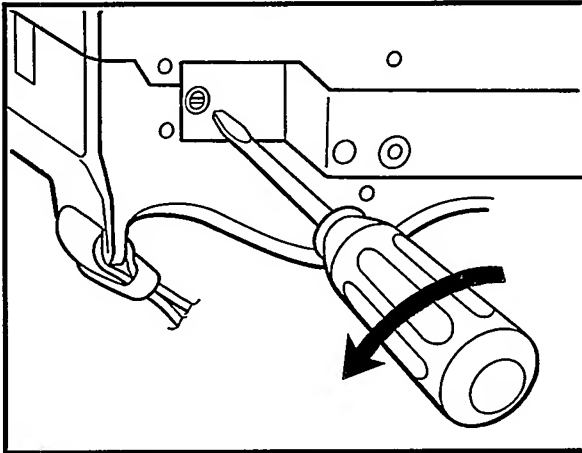
■ Refreshing function

The battery pack can be recharged for repeated use. However, if it is recharged repeatedly while there is still some charge left, its charging capacity will be gradually reduced. Therefore, if you often need to recharge semi-discharged battery packs, attach the battery pack to the AC adaptor, connect the AC adaptor to the mains, and press the refresh button to completely discharge the battery pack. (The refresh lamp will light up, and when the discharging is finished, the charging indicator lamp will light up instead.) This will increase the charging capacity and extend the operating life of the battery pack. Therefore, if the operating life of the battery pack becomes noticeably shorter, refresh it. (It is recommended to refresh the battery pack approx. once every five recharging.)

Setting the date and time

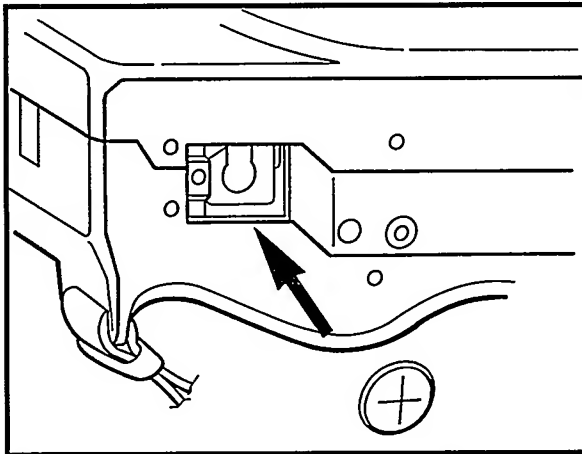
How to Insert the battery for the clock operation

1



Remove the lid.

2



Insert the "CR2032" size battery with polarities (+ and -) aligned correctly and then replace the lid.

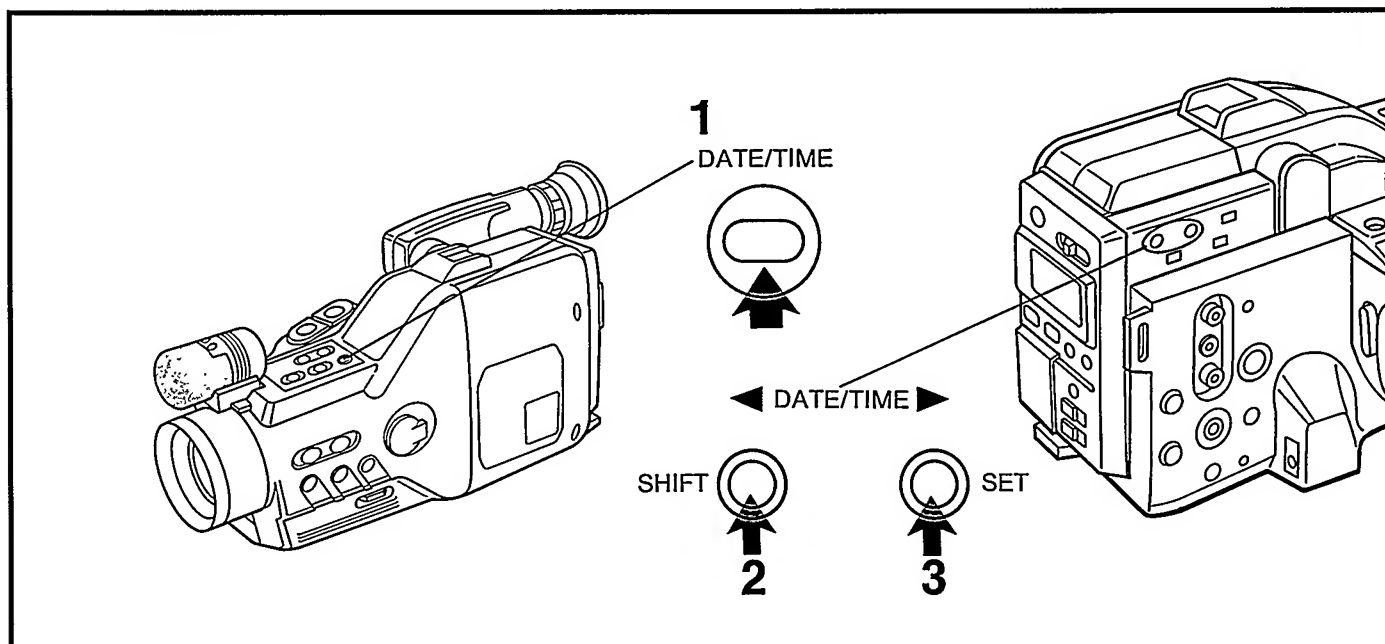
Notes:

- This battery is necessary for the date and the time, title, S-VHS-C and white balance modes to be memorized by the Camcorder.
- If the battery is not inserted or if it is exhausted, the indication "BACKUP" in the electronic viewfinder (EVF) will flash for approximately 10 seconds when turning the Camcorder on.
- When replacing the battery while the time and the date indications are still correct, connect the Camcorder to the AC adaptor for the duration of the battery replacement so that the time will remain unchanged.

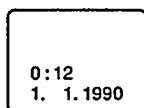
CAUTIONS FOR BATTERY REPLACEMENT

- The life of the battery is about one year. Inspect and if necessary, replace the battery once a year.
- Load the new battery with its polarities (+ and -) aligned correctly.
- Remove spent battery immediately and dispose of it.
- Do not try to short-circuit, recharge or heat the battery and do not throw it into a fire.

Setting of the date and time



- 1** Push the DATE/TIME selector button. The indication shown below will appear in the electronic viewfinder (EVF).



- If no battery is inserted, the indication "BACKUP" will light up.

- 2** When the SHIFT button is kept pressed for more than about 2 seconds, the "Year" portion will start to flash. Then, at every press of the SHIFT button, the items to be set will flash in the following sequence.

→ Year → Month → Date → Hour → Minute → Year →

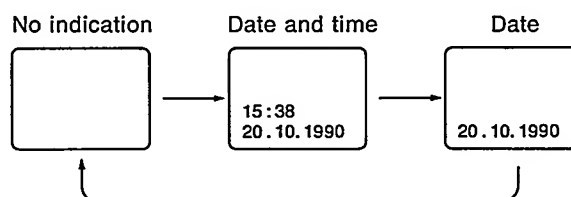
- 3** When the SET button is pushed, the flashing portion displayed will be changed in the following sequence.

YEAR : 1990 → 1991 →2089 → 1990 → ...
 MONTH : 1 → 2 →12 → 1 → ...
 DATE : 1 → 2 →31 → 1 → ...
 HOUR : 0 → 1 →23 → 0 → ...
 MINUTE : 00 → 01 →59 → 00 → ...

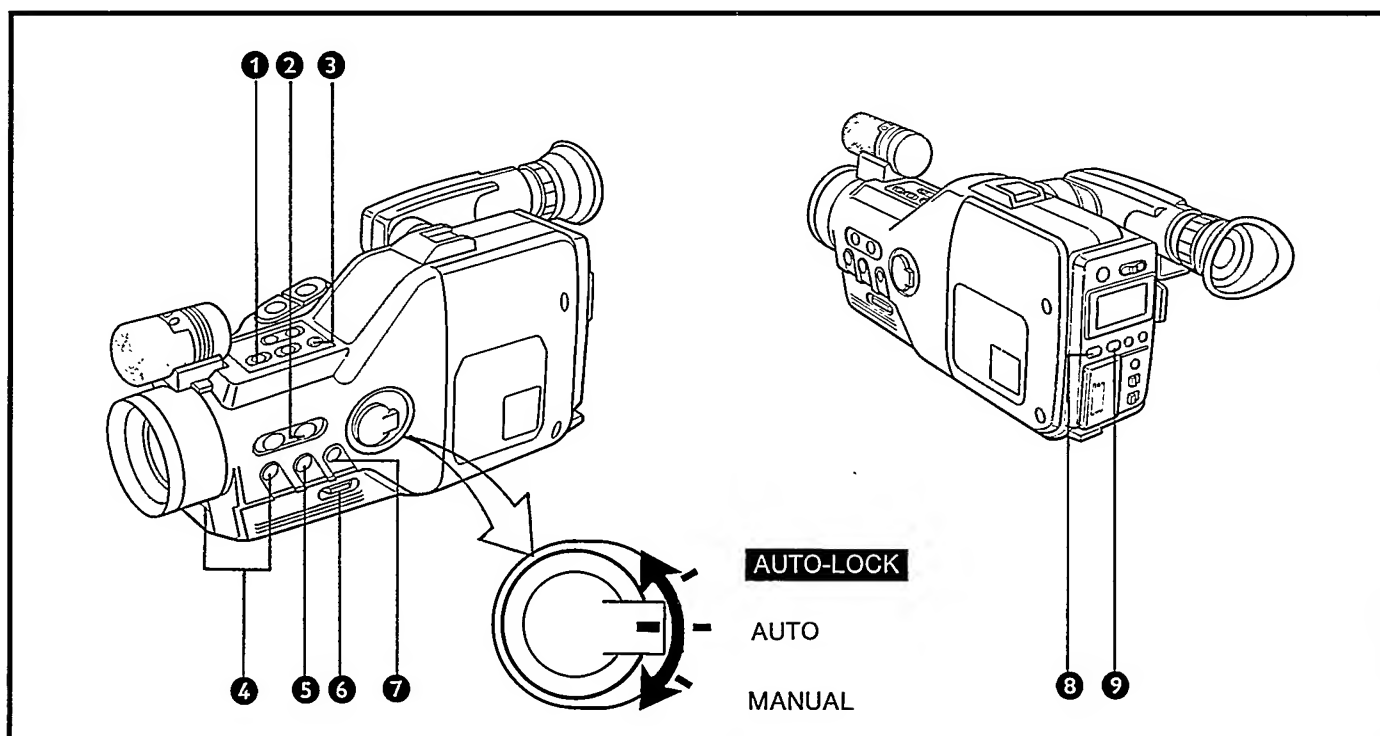
- Repeat procedures 2 and 3 until all items have been set.
- Once the time and date are set, press the SHIFT button in response to a precise time signal so that the clock may begin to function.

Recording the date/time indications

When the DATE/TIME selector is pushed repeatedly, the indications will change in the following sequence.



Operation selector switch



Operation modes and usable functions

When the Operation select switch is set to the "AUTO-LOCK" or "AUTO", the controls and functions marked with "X" cannot be operated. When using this Camcorder for the first time, use it with the Operation select switch set to the "AUTO-LOCK" or "AUTO".

- When starting to shoot in a hurry, setting to either of these positions will prevent mistaken operations.
- This switch has nothing to do with operation modes other than those connected with shooting.

Operation buttons	Operation selector switch		
	MANUAL	AUTO	AUTO-LOCK
① TITLE FUNCTION ON/OFF button	O	O	X
② FADE button	O	O	X
③ DATE/TIME selector	O	O	X
④ FOCUS adjusting button/Manual focus control	O	X (Auto)	X (Auto)
⑤ High speed SHUTTER selector	O	X (Normal)	X (Normal)
⑥ IRIS CLOSE/OPEN control	O	X (Auto)	X (Auto)
⑦ WHITE BALANCE button	O	X (Auto)	X (Auto)
⑧ REV (REWIND/REVIEW) button	O	O	X
⑨ FWD (FAST FORWARD/CUE) button	O	O	X

O : Manually controllable

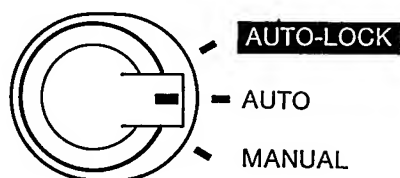
X : Locked

Advanced videography techniques

Focus

Continuous auto focus

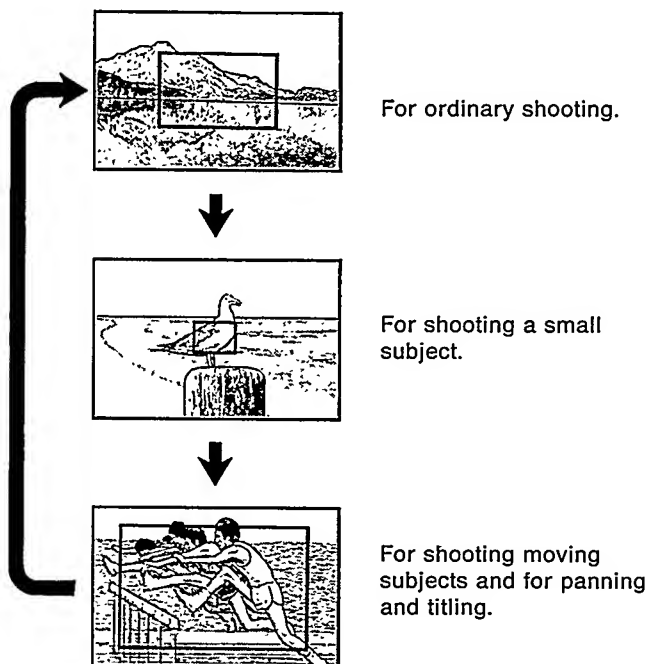
- 1 Select the Operation selector switch to "AUTO" or "AUTO-LOCK" position.



- 2 Aim the Camcorder at the subject. The focus will automatically be adjusted to the subject within the focusing zone.

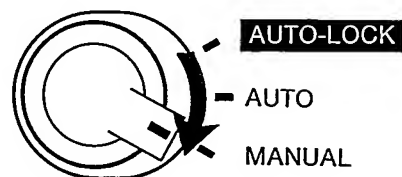
Focusing zone selection

- Press the ZONE SELECT/PUSH-AF button.

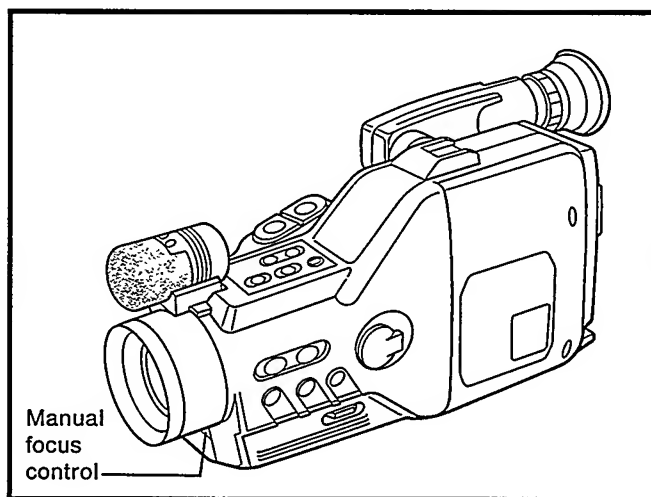


Manual focus

- 1 Select the Operation selector switch to "MANUAL".



- 2 Push the FOCUS button.



- 3 Turn the Manual focus control to adjust the focus.

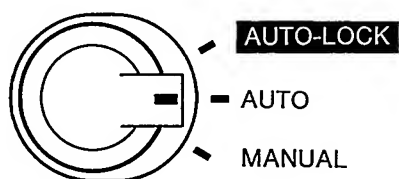
Notes:

In the following shooting conditions, the Auto focus system will not be able to provide stable and exact focus adjustment. Set the Focus mode selector to "MANUAL" in such cases and adjust the focus by turning the manual focus control.

1. When shooting a subject through dirty glass.
2. When shooting subjects with shiny surfaces. (The focusing zone frame may disappear.)
3. When shooting a subject with a part of it near and another part far from the S-VHS-C Camcorder.
4. When shooting an oblique subject.
5. When shooting a subject with distinct horizontal stripes.
6. When shooting a flat subject such as a white wall.
7. When no part of the subject is within the focusing zone frame.
8. When shooting with special lenses or filters.
9. When shooting a fast-moving subject.
10. When shooting a dark subject. (The focusing zone frame may go on and off.)

Iris

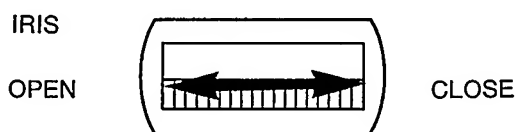
Auto iris



- 1 Select the Operation selector switch to "AUTO" or "AUTO-LOCK".
The iris will automatically be adjusted.

Manual iris

- 1 Select the Operation selector switch to "MANUAL".
- 2 Turn the IRIS CLOSE/OPEN control.



Turn to OPEN : When the subject is backlit.
Turn to CLOSE : When the picture is too bright.

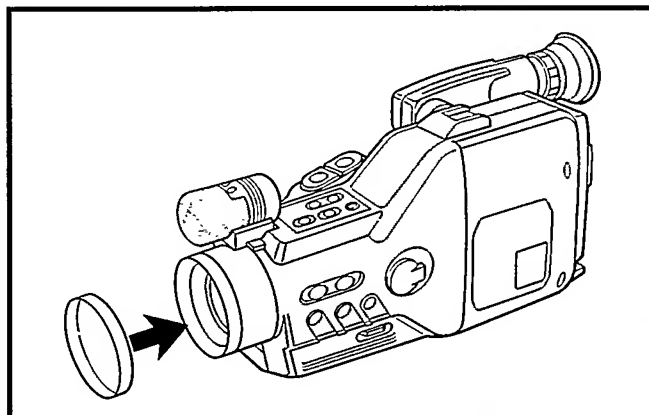
White balance

This adjustment is necessary to assure natural colour rendition.

Auto white balance

- 1 Set the Operation selector switch to the "AUTO-LOCK" position.
- 2 Aim the Camcorder at the subject.
 - For continuous automatic white balance adjustment.

Manual white balance adjustment

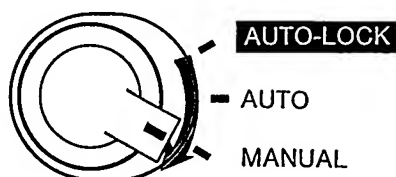


- 1 Attach the white cap to the lens.
 - 2 Set the Operation selector switch to "MANUAL".
 - 3 Press the white balance button to activate the hold mode. The "SET" indication in the LCD informs about the state of the adjustment.
 - Flashing slowly : Not set
 - Flashing rapidly : During setting
 - Static Indiction : Setting is finished
- How to use the white cap
If there is only one light source, attach the white cap to the lens for the manual white balance adjustment. If there are several light sources, remove the white cap from the lens and point the Camcorder at a purely white object such as white paper and then adjust the white balance.
 - Automatic recall of previous white balance setting
When the POWER switch of the Camcorder is set to "OFF" and later to "ON" again, the "SET" indication will flash slowly in the hold mode, however, the last previous white balance setting is still maintained. It is also maintained during Playback, Rec review and Camera search. However, the previous white balance setting will no longer be maintained when the AC adaptor is turned off or the battery pack is removed from the Camcorder.

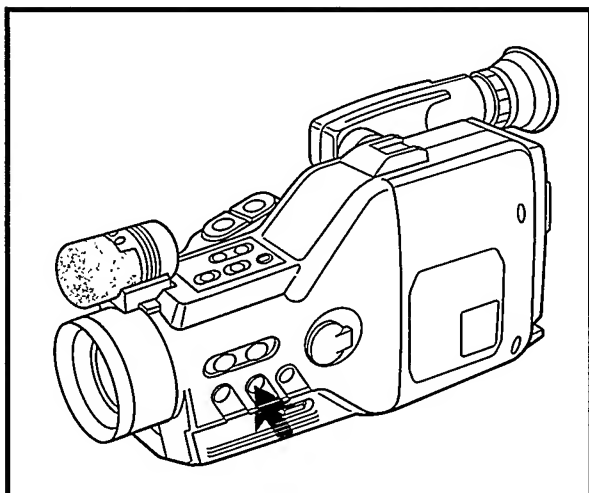
High speed shutter

A range of different shutter speeds make possible videography of scenes with fast movements.

- 1 Select the Operation selector switch to "MANUAL" position.



2



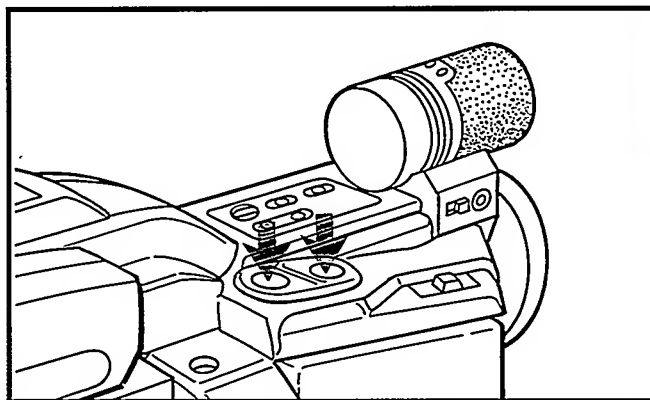
By repeatedly pushing the High speed shutter selector, the shutter speed can be changed as follows:

NOR	: Normal speed
250	: 1/250 sec.
500	: 1/500 sec.
1000	: 1/1000 sec.

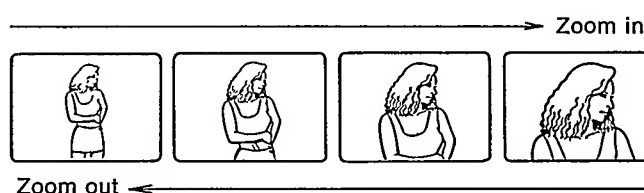
For playback

When scenes recorded with high shutter speed(s) are later played back on a VCR equipped with the playback functions Super still and Super fine slow motion, etc., still and slow motion pictures with very sharp contours and full details can be obtained.

Zooming

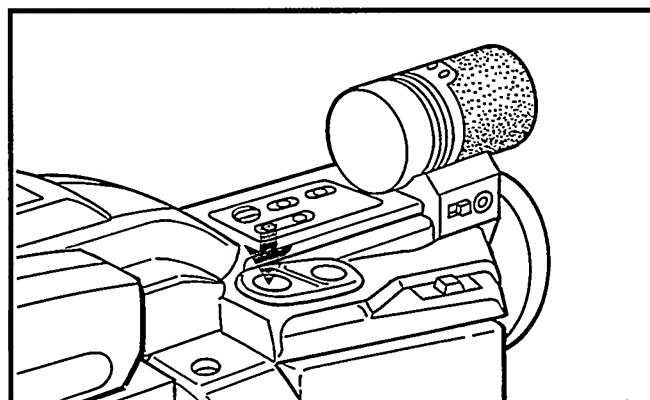


- 1 Press "T" for zooming in and "W" for zooming out.



Macro close-up

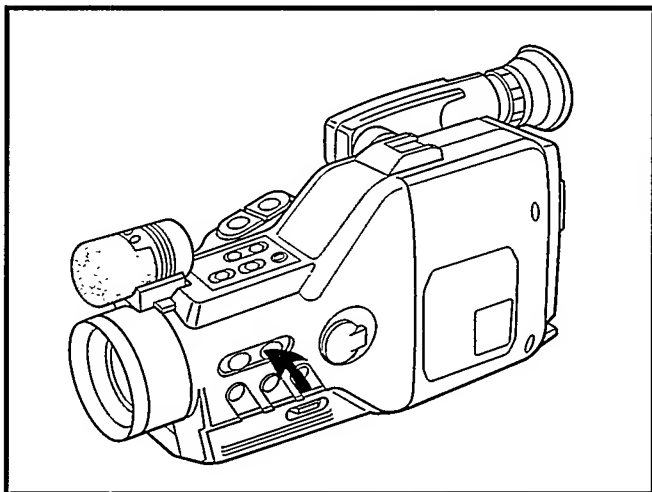
For shooting small subjects of photos.



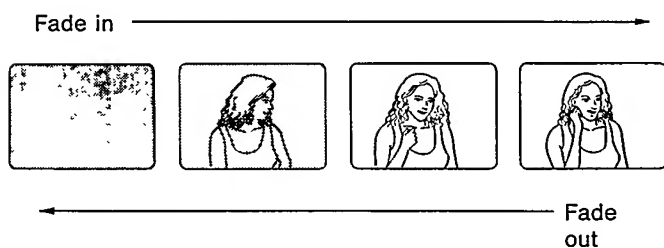
When pressing the "W" zoom button to zoom to wide-angle, it is possible to focus on objects that are more than 5 mm away from the front lens surface. When zooming to wide-angle, you have only to approach the objects and shoot them.

- The focus can be adjusted in the "AUTO" or "MANUAL" focusing mode.
- When zooming in on an object by pressing the "T" side of the zoom button, the focus can be adjusted to a distance of 0.7 m or more.

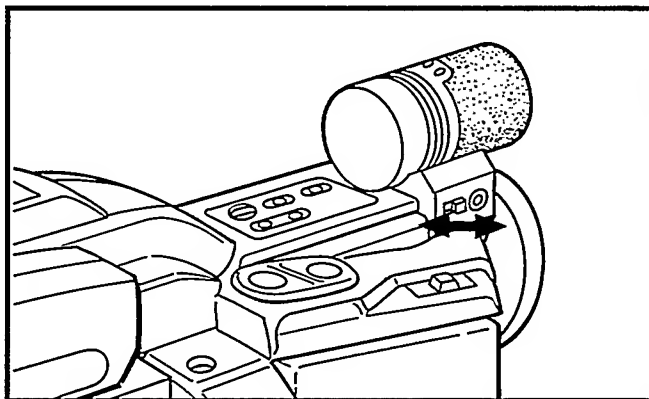
Fade-in/Fade-out



Fading out a scene to black is possible by keeping the FADE button pressed, and fading in from black is operated by releasing this button. The sound is also faded out and faded in together with the picture.



Filter ON/OFF selector



OFF : For normal sensitivity
ON : For increased sensitivity

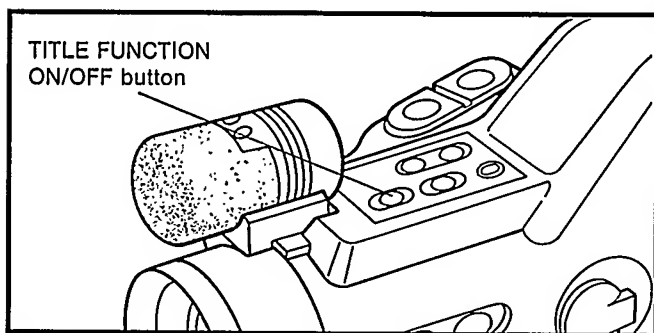
- Do not change the setting of this switch during recording, otherwise the sound will be interrupted for a few seconds.

Recording titles

The titling function makes it possible to input several titles into memory and recall them later during shooting at the push of a button for superimposition onto the normal picture (Digital title memory function).

Inputting a title into memory

This operation can be performed while the Camcorder is in the recording pause or stop mode.



- 1** Use the macro function to adjust the focus when shooting a small written, printed or painted title.
- 2** Press the MEMORY button.
 - Keep the button pressed for more than half a second.
 - The title is memorized.

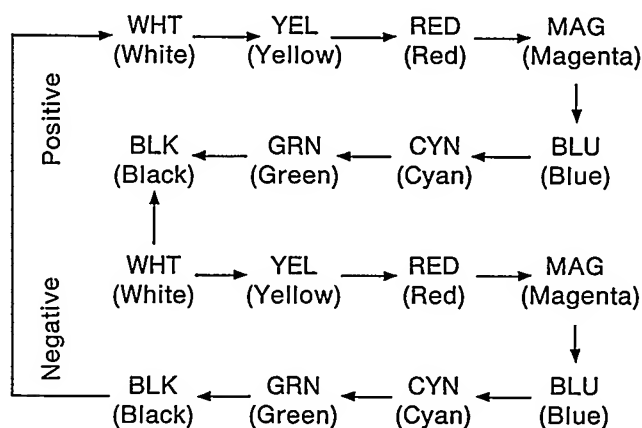
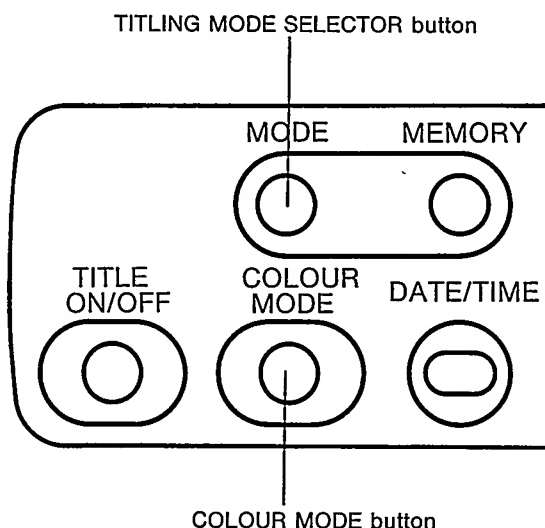
While the title is displayed in the electronic viewfinder (EVF), its colour and the titling mode (the way it will be superimposed) can be selected. (See next page for details.)
- 3** Press the TITLE FUNCTION ON/OFF button to erase memorized titles.

■ Remarks about titling

The title remains stored in memory until the lithium battery is exhausted. When a new title is input, the title previously memorized on that title page will be erased.

Selecting the colour of a title

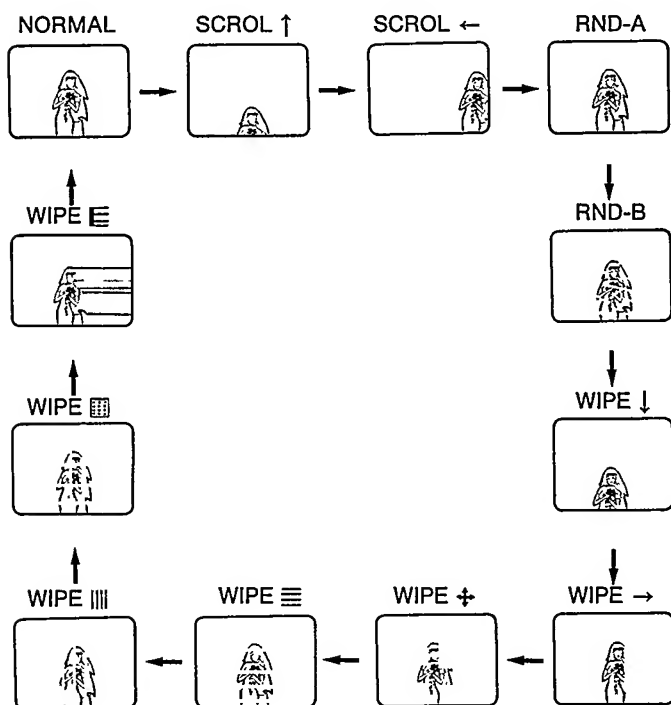
By repeatedly pressing the COLOUR MODE button, the colour of the title can be changed in the following order. (This function can also be used while the title is being recorded.)



Selecting the titling mode

By repeatedly pressing the TITLING MODE selector button, the way in which the title is superimposed onto the picture being recorded can be changed in the following order.

(This function can also be used while the title is being recorded.)



When pressing the TITLE FUNCTION ON/OFF button, the title is indicated in the selected mode.

- If another title is indicated, press the TITLE FUNCTION ON/OFF button to erase it and then press to indicate a new title which you desire.

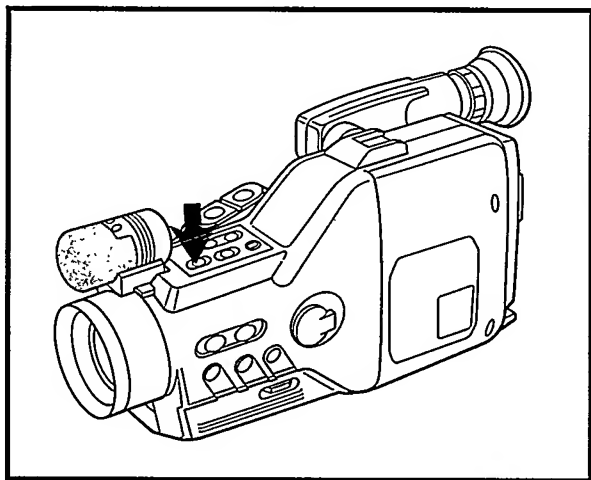
Titling modes and resulting effects

SCROL ↑	The title scrolls in from the bottom.
SCROL ←	The title scrolls in from the right side.
RND-A	The title appears flickering.
RND-B	The title appears flickering and continues to flicker.
WIPE ↓	The title gradually appears from the top.
WIPE →	The title gradually appears from the left side.
WIPE +	The title appears at the center and expands outward.
WIPE ≡	The title is gradually formed by horizontal bars.
WIPE	The title is gradually formed by vertical bars.
WIPE ▤	The title is gradually formed by mosaic.
WIPE E	The title appears with a trail extending to the right screen edge.

Recording a title

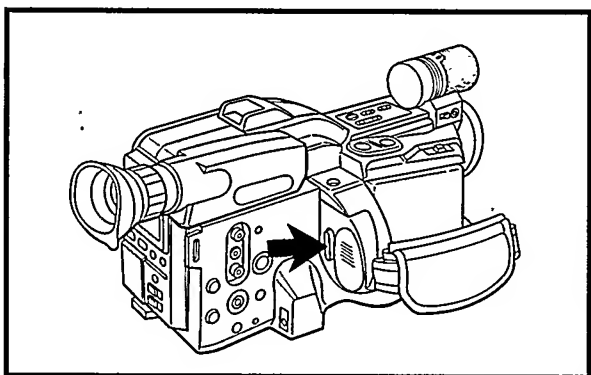
■ Inserting a title in the normal titling mode at the beginning of a recording

1



Press the TITLE FUNCTION ON/OFF button to make the title appear in the electronic viewfinder (EVF).

2



Press the recording start/stop button to start shooting.

- To stop the superimposition of the title, press the TITLE FUNCTION ON/OFF button again.

■ Inserting a title in the normal titling mode during recording

1

Press the recording start/stop button to start shooting.

2

At the point where you want to insert the title, press the TITLE FUNCTION ON/OFF button. (The superimposed title can be seen in the electronic viewfinder (EVF).)

- To stop the superimposition of the title, press the TITLE FUNCTION ON/OFF button again.

Character generator

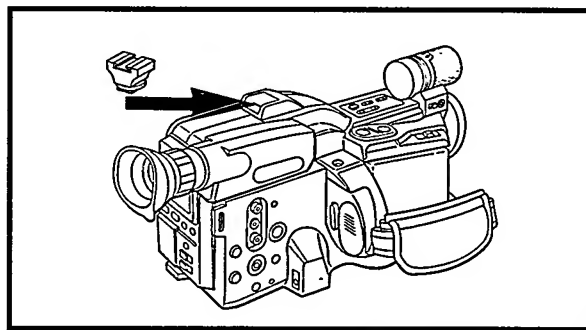
The use of the optional character generator makes it possible to record titles, time, date and stopwatch while shooting.

Attaching

Use the shoe adaptor that is supplied with the unit.

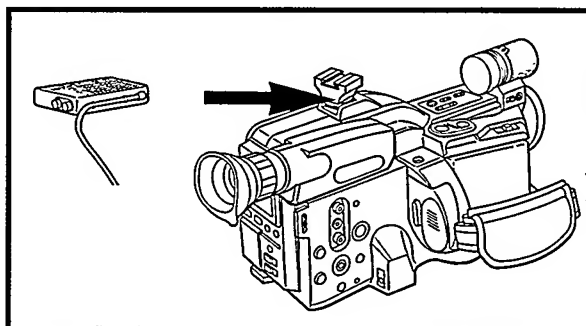
- Before attaching the character generator, turn the Camcorder off.

1



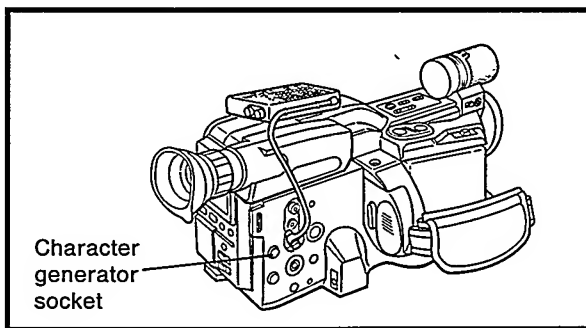
Attach the shoe adaptor and tighten the screw.

2



Attach the character generator to the shoe adaptor.

3



Insert the plug of the character generator cord into the character generator terminal.

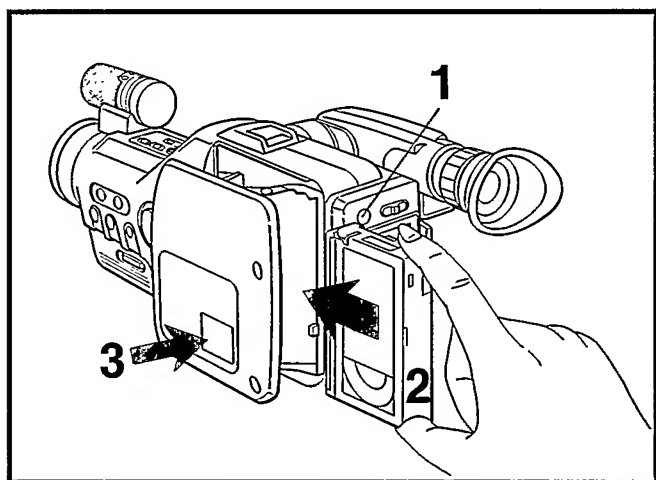
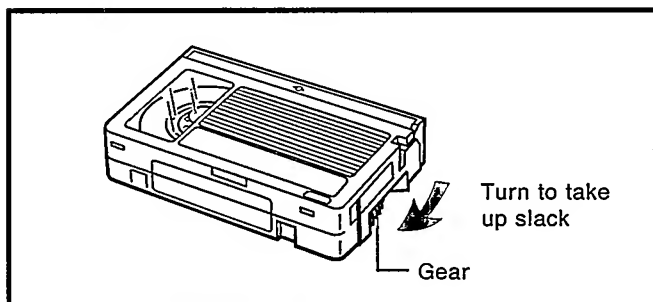
- For the operation of the character generator, see the operating instructions of the character generator.
- Be sure to pass the connection cable in front of the electronic viewfinder (EVF).

Video cassette

Inserting the video cassette

Before inserting the cassette

Make certain before inserting the cassette that the tape is not slackened. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.



- 1 Press the EJECT button.
- 2 Insert the video cassette into the cassette compartment with its window facing outside.
- 3 Push the cassette compartment cover inward, until it locks with a click.

Removing the video cassette

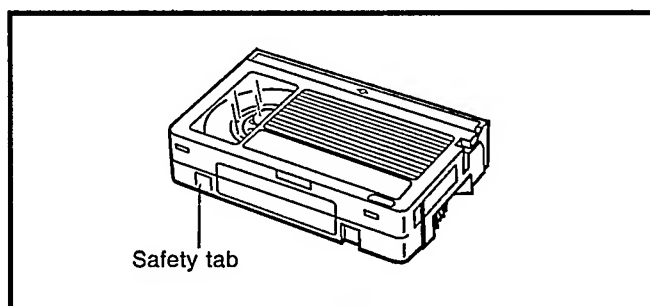
- 1 Press the EJECT button.
- 2 Pull out the video cassette.
- 3 To close the cassette compartment push the cassette compartment cover inward, until it locks with a click.

Note:

Use S-VHS-C/VHS-C video cassettes only.

Notes:

- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover.

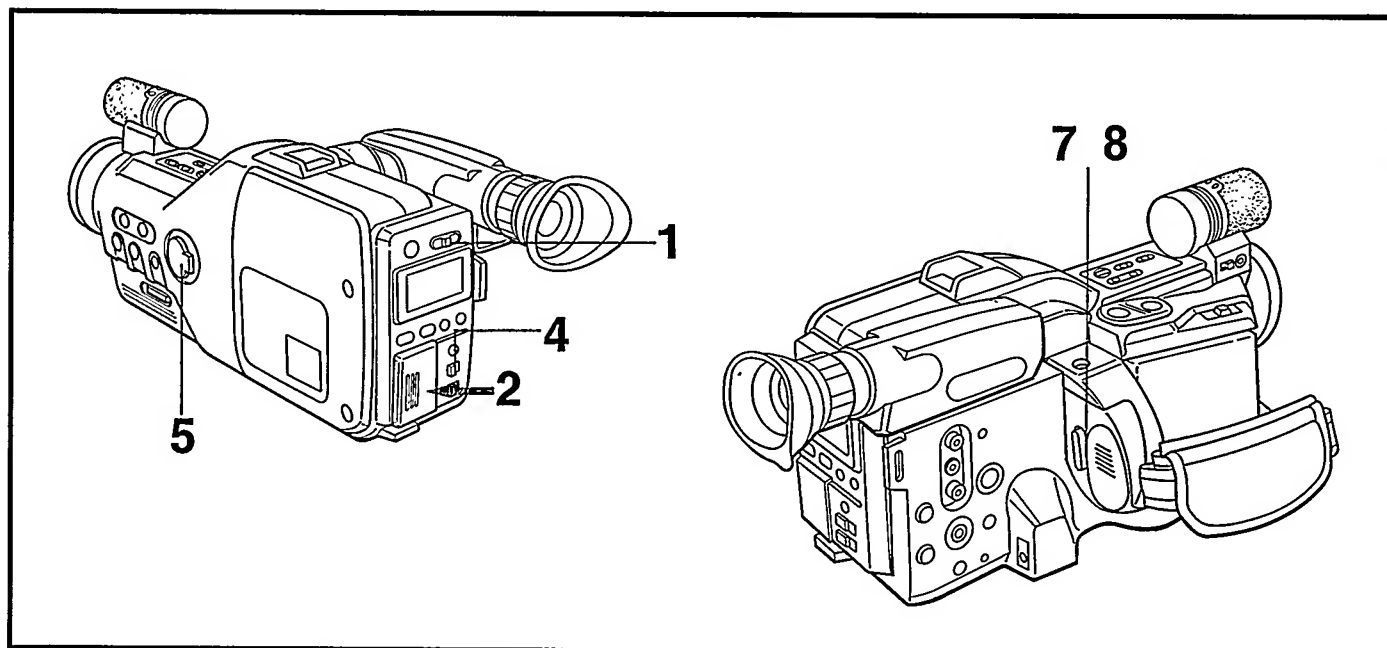


Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

Camera recording

To start recording



1 Slide the POWER switch to the right to turn the Camcorder on.

2 Set the CAMERA/VCR selector switch to "CAMERA".

3 Insert a video cassette with the erasure prevention tab intact.
● After a few seconds, the Camcorder will be in the recording pause mode.

4 Set the recording speed selector to "SP" or "LP".

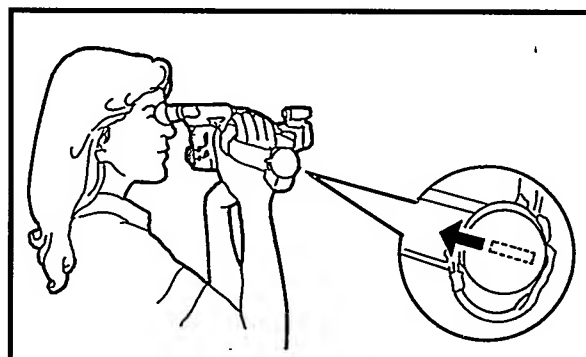
5 Set the operation selector switch to "AUTO". The settings made in this way are indicated in the LCD as follows:

FOCUS : **A**

WHITE BAL : **A**

SHUTTER : **NOR**

6 Place the Camcorder in the shooting position.



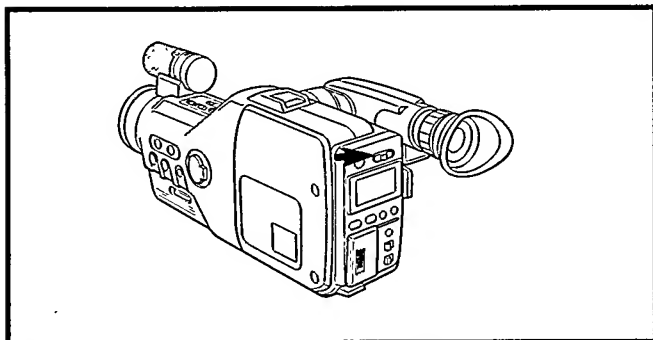
- Grasp the handgrip.
- Adjust the length of the grip belt.
- Attach the lens cap to the grip belt.

7 Press the recording start/stop button.
● The recording starts.

8 Press the recording start/stop button again to stop the recording temporarily. (Recording pause mode)

Setting the recording pause lock mode

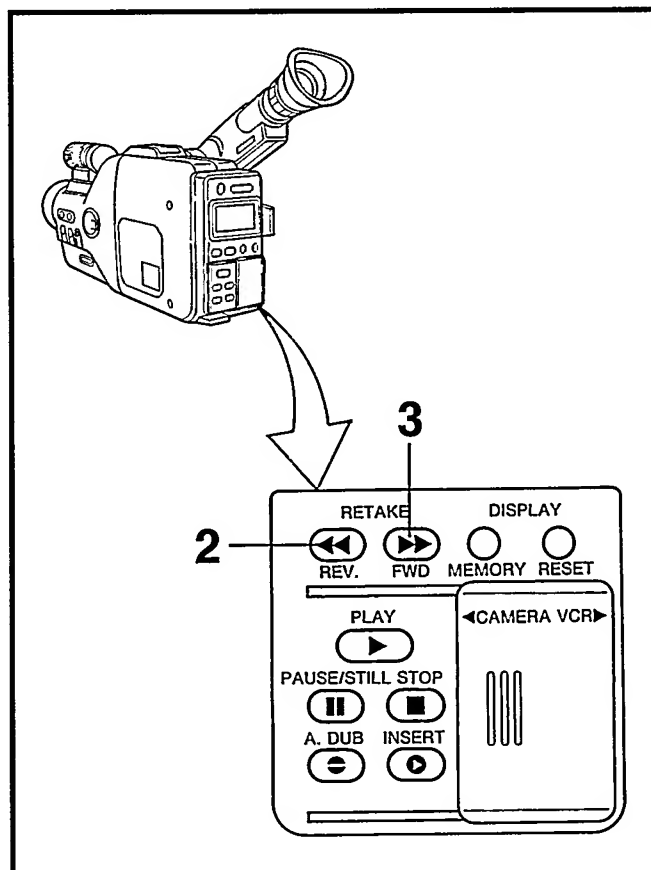
When a recording interval (recording pause mode) will continue for more than 3 minutes, turn off the power to protect the tape from damage and to save battery power. (This condition in which the tape is loaded on the head drum is called the recording pause lock mode).





- When the recording pause mode is continued for about 5 minutes, the Camcorder will automatically shut off the power. (Set into the recording pause lock mode itself.)
- When the recording pause lock mode is continued for about 48 hours, the Camcorder will automatically release the recording pause lock mode to stop mode.

Retake


For checking recorded scenes.



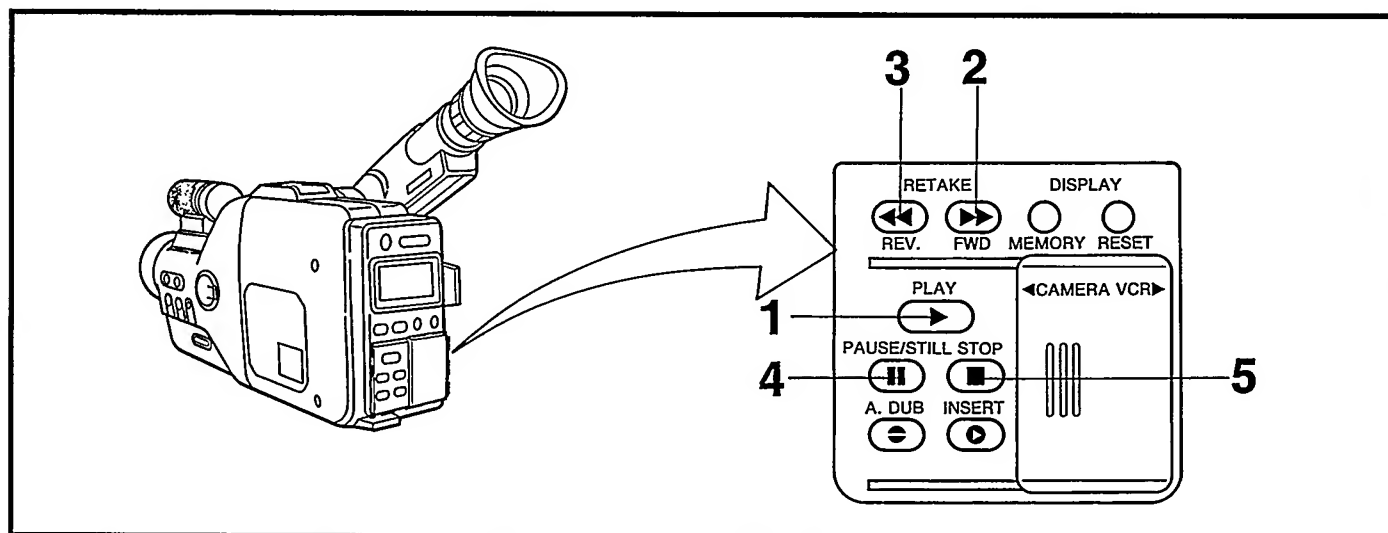
- 1** Put the Camcorder in the recording pause mode.
- 2** Keep the REV  button pressed to play back a scene at high speed in reverse direction.
- 3** Keep the FWD  button pressed to play back a scene at normal speed in forward direction.
 - The sound is not reproduced.

Rec review

For checking the last few seconds of recorded scenes.

- 1** Put the Camcorder in the recording pause mode.
- 2** Press the REV  button.

Playback



Preparation

1. Slide the POWER switch to the right.
2. Insert the recorded cassette.
3. Set the EDIT switch to "OFF".
4. Select the playback sound with the AUDIO SELECTOR switch:
 - Hi-Fi : To reproduce the sound on the Hi-Fi sound track.
 - NORMAL : To reproduce the sound on the normal sound track.
 - MIX : To reproduce both the sound on the Hi-Fi and on the normal sound tracks.
5. Set the CAMERA/VCR selector switch to "VCR".

Operations

- 1** Playback: Press the PLAY ► button.
- 2** Cue playback: Keep the FWD ► button pressed during playback.
- 3** Review playback: Keep the REV ◀ button pressed during playback.
- 4** Still playback: Press the PAUSE/STILL ■ button during playback.
 - To return to normal playback, press this button again.
- 5** Press the STOP ■ button to finish playback.

Fast forward

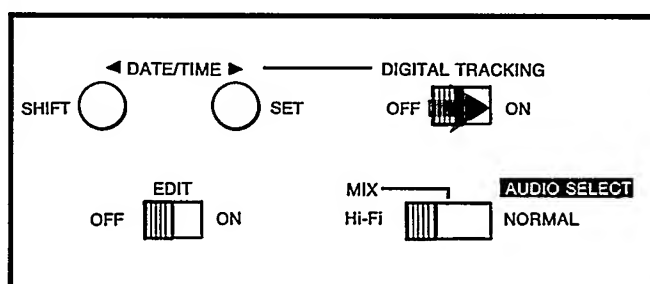
Press the FWD ► button to rapidly wind the tape forward.

Rewind

Press the REV ◀ button to rapidly rewind the tape.

Tracking control

Digital tracking switch



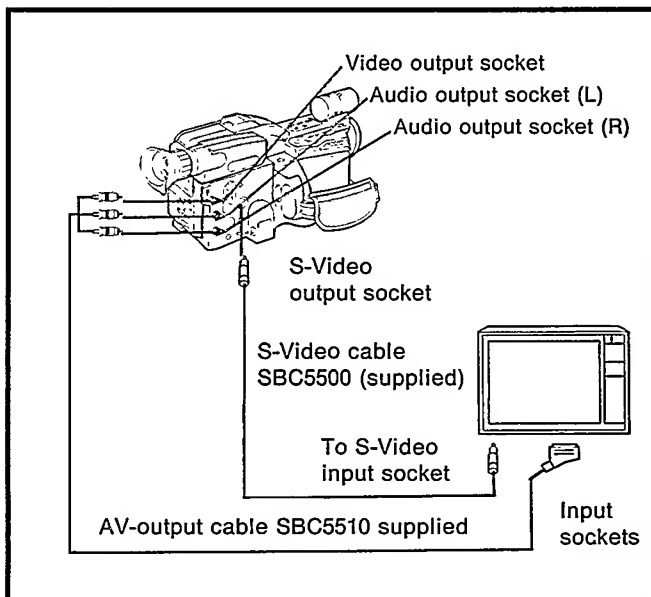
- 1** Set the DIGITAL TRACKING switch to "ON" for normal use. (The tracking will be adjusted automatically.)
If the tracking is not adjusted properly, for example when playing back a tape recorded on another unit, set this switch to "OFF" and adjust in the following way.
- 2** Adjust the tracking with the TRACKING ◀ or ► buttons to minimize noise.

Notes:

- The sound will be played back only during normal playback.
- Playback: The tape will be rewound automatically when it reaches its end.
- Fast forward: The tape will stop automatically when it reaches its end.
- Rewind: The tape will stop automatically when it reaches its beginning.
- Still playback: If the Camcorder is left in this mode for about 6 minutes, it will switch over to the stop mode, to protect the tape and video heads.
- To ensure optimum sound reproduction, set the AUDIO SELECTOR switch to the position "Hi-Fi" for ordinary use.

Playback via TV set (connections)

TV set with AV input



Playback via S-Video cable

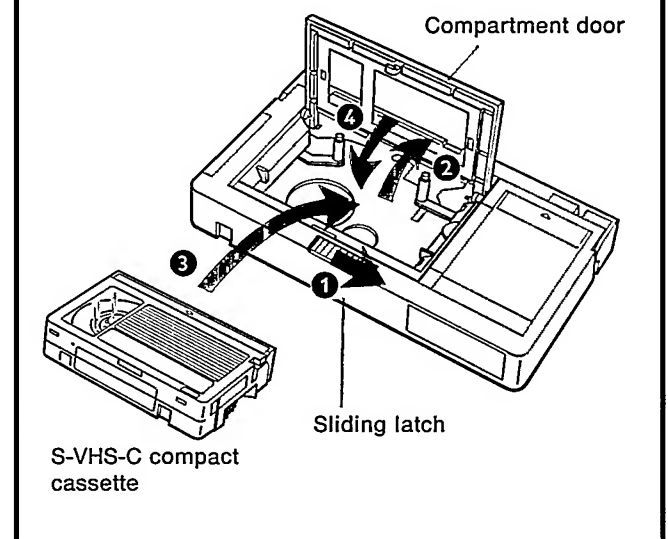
Connect this cable if the TV set is equipped with an S-Video input socket.

Playback on a table type VCR

Use the cassette adaptor 22AV5146

The S-VHS-C compact video cassettes recorded with the Camcorder can be played back with a standard S-VHS VCR by using the optional cassette adaptor. (A compact video cassette installed in the cassette adaptor is fully compatible with a standard S-VHS VCR for both recording and playback.)

- 22AV5146 cassette adaptor
Being battery-operated, the 22AV5146 performs tape loading and unloading automatically.

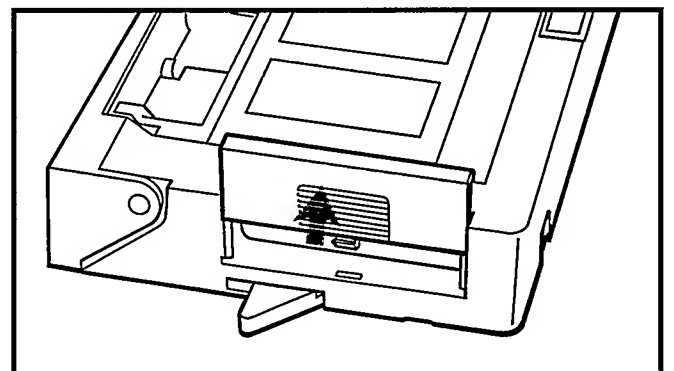


For more details refer to the instruction manual of the 22AV5146.

Note:

During special-effects playback (slow motion, still frame, etc.) the picture may vibrate or noise bars may appear on the screen.

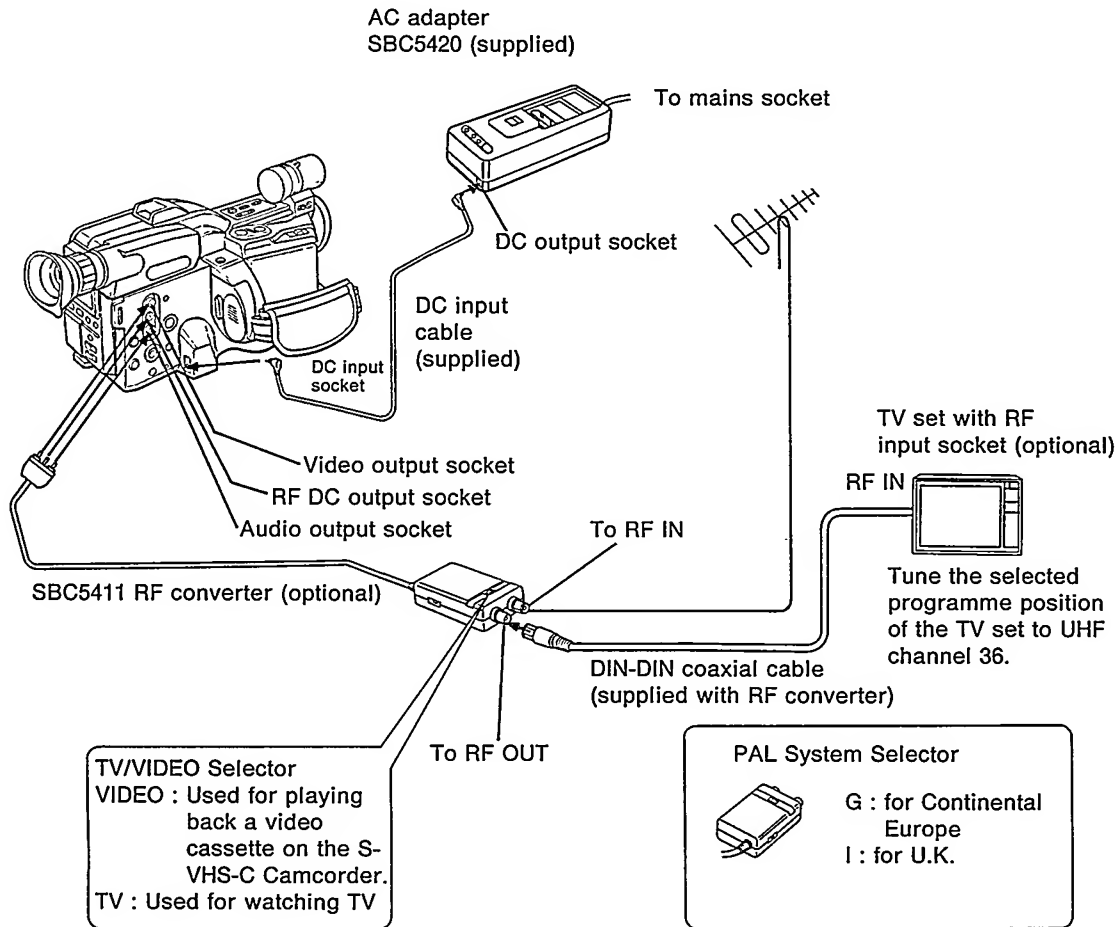
Inserting the battery into the cassette adaptor



Remove the battery cover by sliding it up. Install one "R6" battery and reattach the cover.

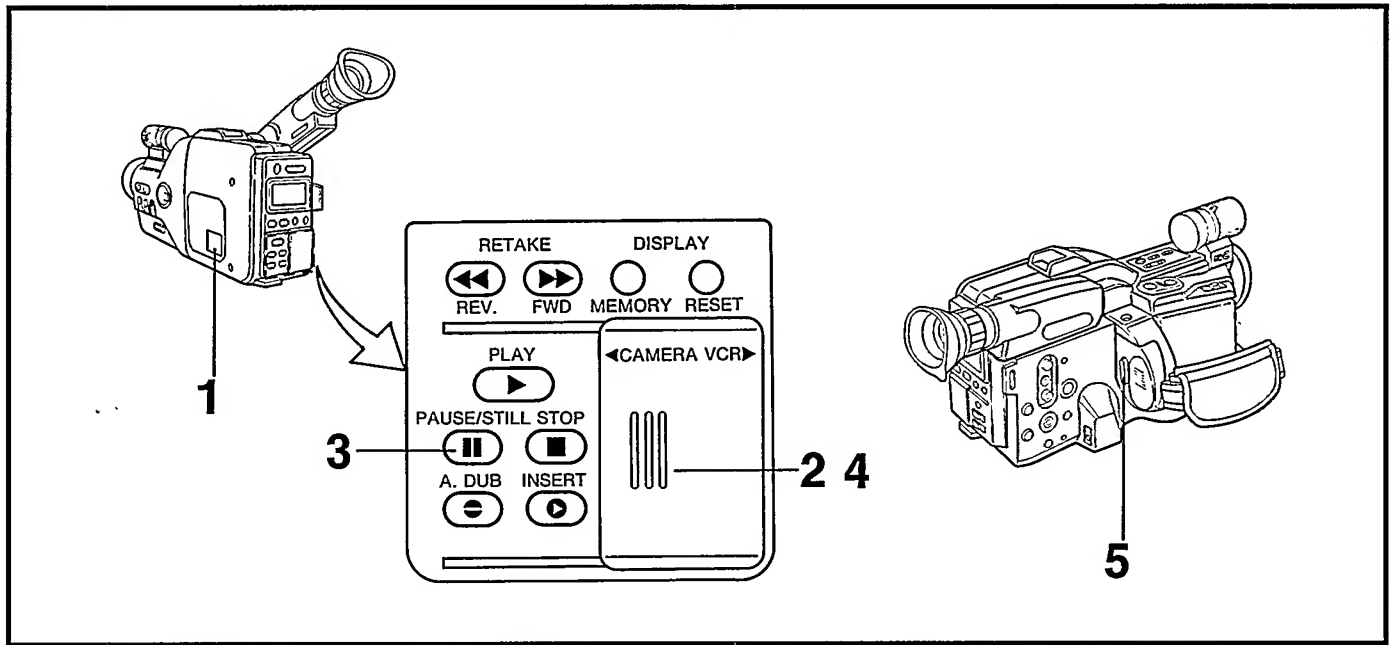
Connection to a TV set without video and audio input sockets

The AV euroconnector, AC adapter and optional RF converter are required



Note: Only use the specified adapters for the connections.

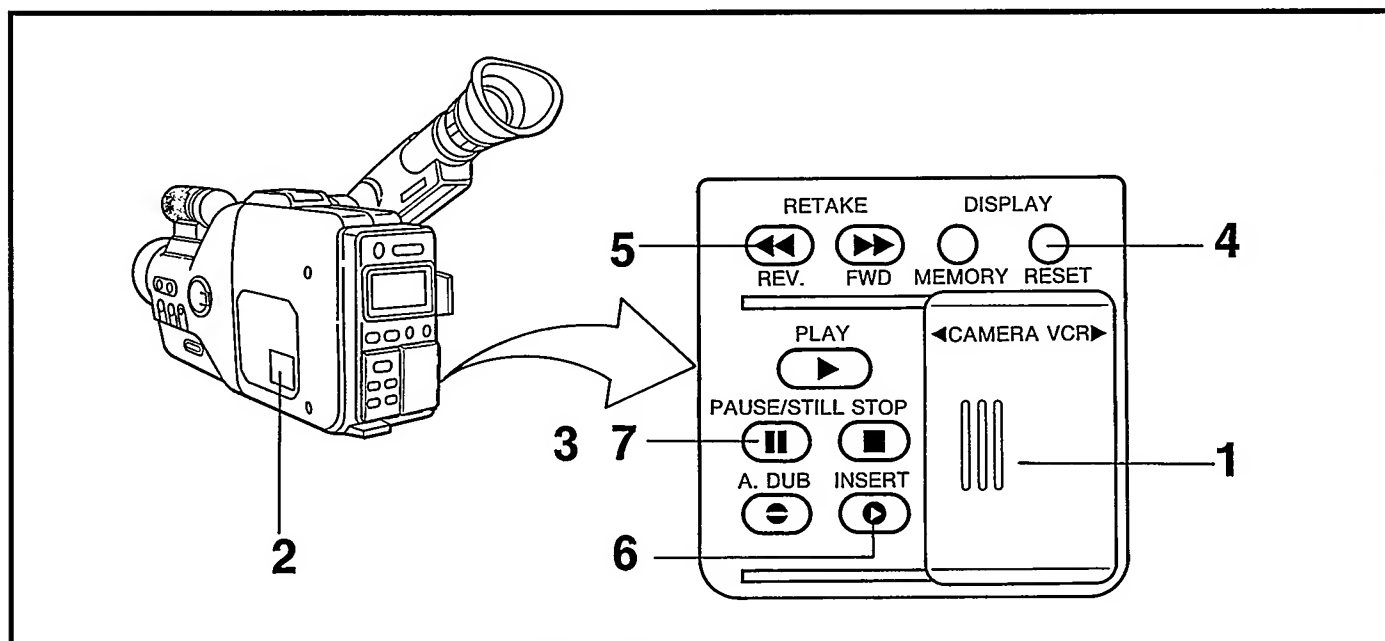
Assemble editing



- 1** Insert a recorded video cassette with intact erasure prevention tab.
- 2** Set the CAMERA/VCR selector switch to "VCR".
- 3** Play back the tape to locate the point where the new recording is to be joined (Assemble editing), and press the PAUSE/STILL button at the desired point.
- 4** Set the CAMERA/VCR selector switch to "CAMERA".
- 5** Press the recording start/stop button to start shooting the new scene.

Insert editing

Replacing pictures and Hi-Fi sound on a recorded tape with new scenes and sound.



- 1** Set the CAMERA/VCR selector switch to "VCR".
- 2** Insert the recorded video cassette with intact erasure prevention tab.
- 3** Play back the tape to locate the point where the insert editing is to finish, and press the PAUSE/STILL button at that point.
- 4** Press the RESET button, and then the MEMORY buttons.
 - The indication "M0:00.00" appears in the electronic viewfinder (EVF) and LCD.
- 5** Press the REV button to locate the point where the insert editing is to start, and release the button at that point.

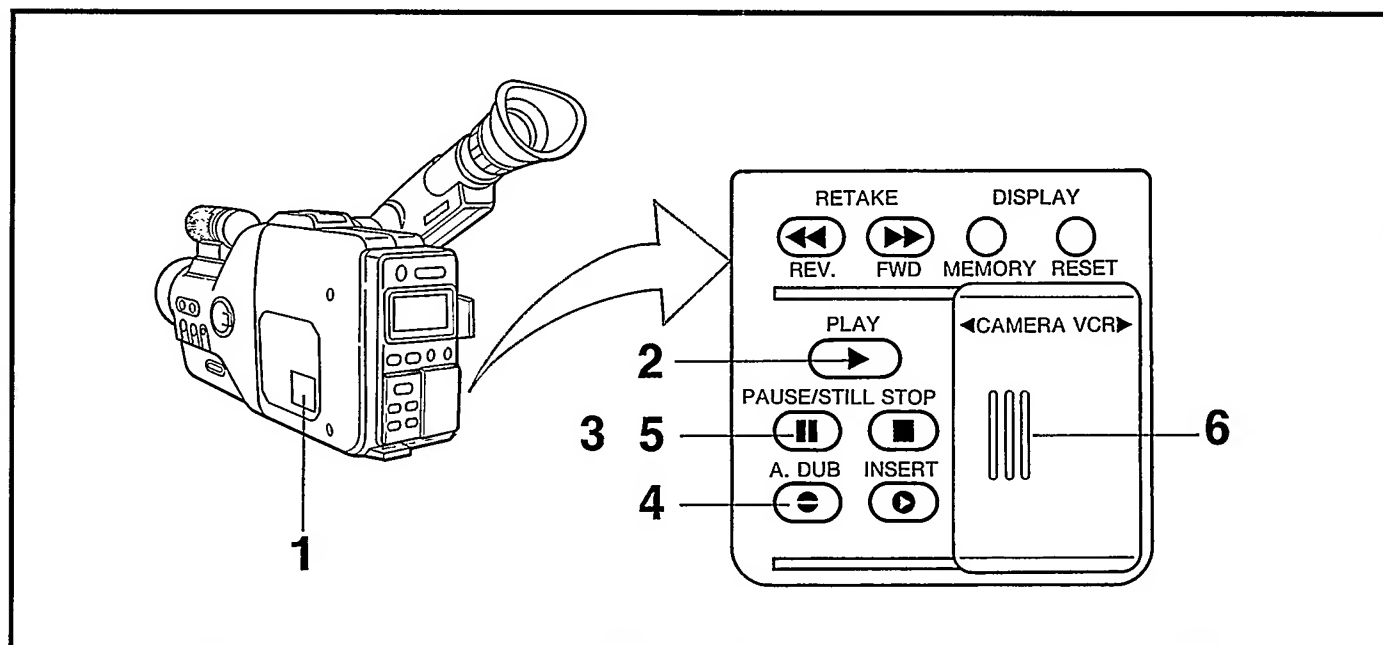
- 6** Press the INSERT button.
- 7** Press the PAUSE/STILL button.
 - The insert editing starts.
- 8** The insert editing will automatically finish at the point where the counter indicates "M0:00.00".
 - To stop the insert editing midway, press the PAUSE/STILL button.

Notes:

- As the inserted sound has been recorded on the Hi-Fi audio track, set the AUDIO SELECTOR switch to "Hi-Fi" for playback.
- It is not necessary to set the recording speed selector and the S-VHS system selector.

Audio dubbing

Audio dubbing (replacing the sound on the NORMAL AUDIO TRACK can be performed by using the built-in microphone or an external microphone.



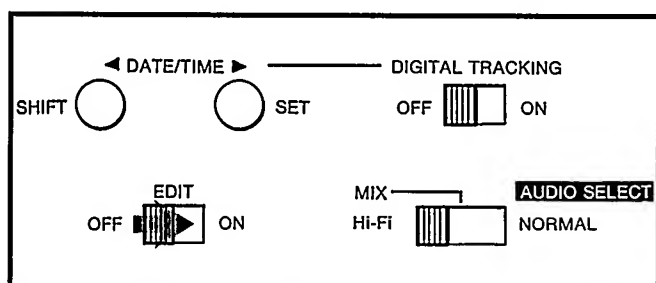
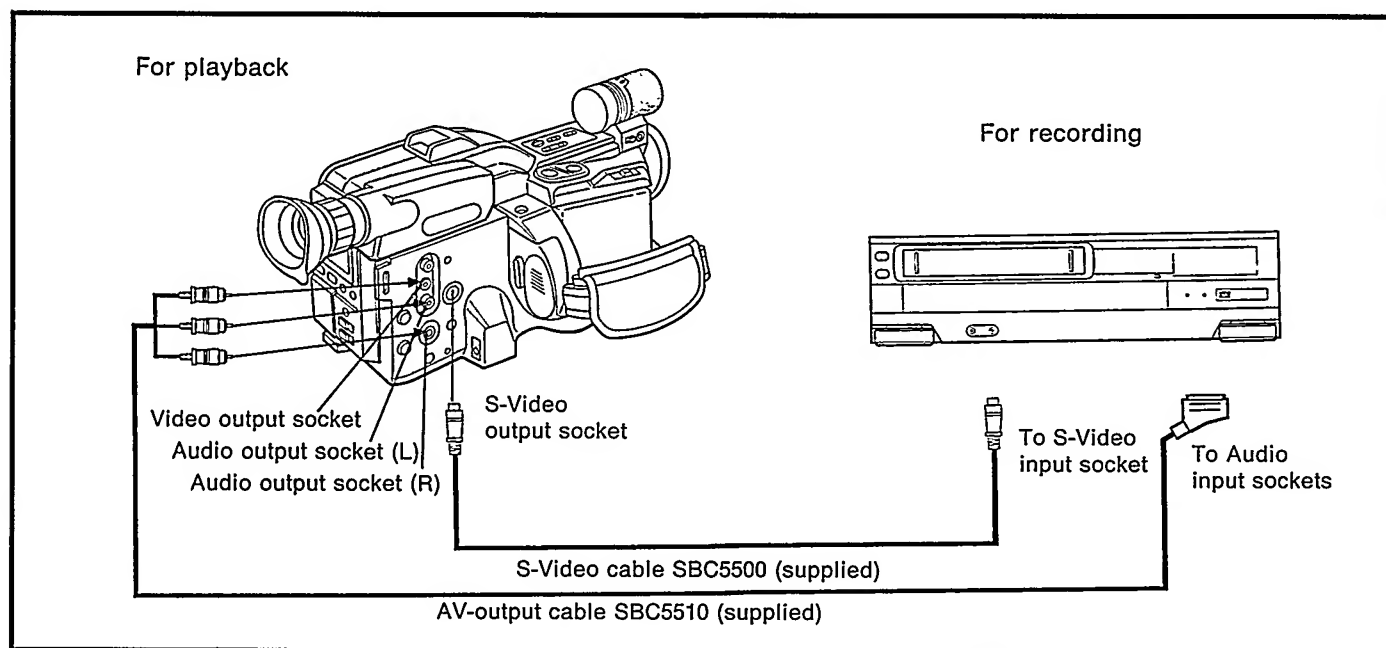
- 1** Insert the recorded video cassette.
- 2** Press the PLAY button.
- 3** Press the PAUSE/STILL button at point where you want to start the audio dubbing.
- 4** Press the AUDIO DUBBING button.
- 5** Operate the audio source unit and then press the PAUSE/STILL button.
 - The audio dubbing starts.
- 6** Press the STOP button to finish the audio dubbing.

Playing back a tape on which audio dubbing was performed

If you want to listen to the replaced sound only, set the AUDIO SELECTOR switch to "NORMAL".

- On the Hi-Fi track, the original sound remains unchanged.

Dubbing (copying)



- 1 Set the EDIT switch to "ON"
- 2 Press the PLAY button of the Camcorder to start playback.
- 3 Press the record button of the VCR to start recording.

Note:

The picture quality of a copied tape is inferior to that of the original tape.

Dubbing with the S-Video cable

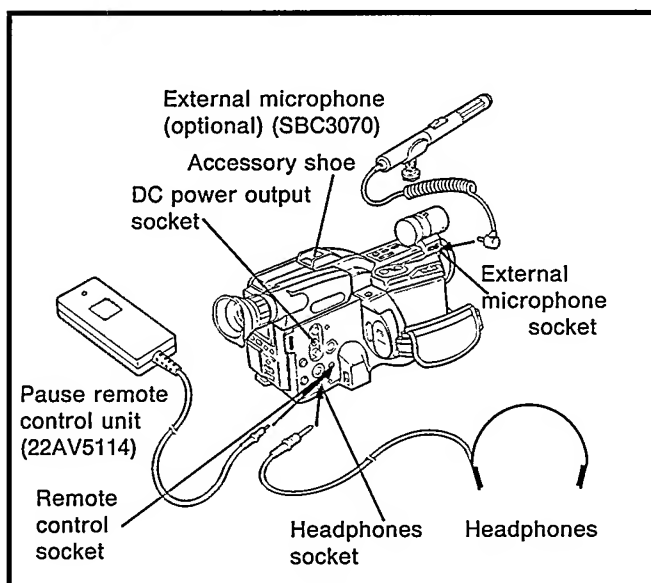
Connect this cable, if the recording VCR is equipped with an S-VIDEO input socket.

Synchro editing

Use the Synchro editing cable (optional) to connect the remote control socket of the Camcorder with the synchro edit socket on the recording VCR.

- If the recording VCR is equipped with Synchro-edit function, this Camcorder can be operated via the recording VCR, i.e. playback start and stop of the Camcorder will be synchronized with the recording start and stop on the VCR. For details, refer to the operating instructions of the recording VCR.

Other connections

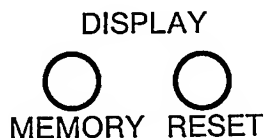


Other functions

Recording speed selector

- SP : For normal tape speed
(30 minutes with SE-C30 cassette)
- LP : For slow tape speed
(60 minutes with SE-C30 cassette)

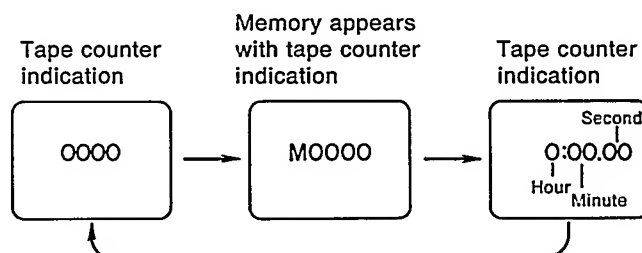
Memory search function



- 1 Press the RESET button at the desired point. The tape counter is reset to "0:00.0".
- 2 Press the DISPLAY MEMORY button.
 - The "M" indication appears in the electronic viewfinder (EVF) and in the LCD.
- 3 After pressing the STOP button, press the REV (REWIND/REVIEW) button.
 - The tape will stop automatically at about the point where the tape counter reads "0:00.0".

Counter indication

By repeatedly pressing the DISPLAY MEMORY button, the counter indication can be changed in the following sequence.



On screen display

To delete the counter indication in the EVF, press the ON SCREEN DISPLAY button (OSD). To make this indication appear again, press this button once more.

Remaining tape time indication

During recording, playback, insert editing, and audio dubbing, the remaining tape time is indicated in minutes. When the remaining tape time becomes less than 2 minutes, the indication will flash.

TAPE SELECT button

When using cassette tapes with long recording time (45 minutes in the SP mode, 90 minutes in LP mode), press the TAPE SELECT button so that the cassette indication "T-45" appears. When the cassette is ejected, the indication will change to "T-30".

VITC signals

This Camcorder is designed for recording VITC signals (Vertical Interval Time Code) from a VITC generator which can be mounted on top of the Camcorder. Using VITC editing controller system (optional), cassette tapes that have been recorded with VITC signals can be edited conveniently and frame-by-frame precision.

Editing recorded scenes into finished video movies

1



View the original tape to check the recorded content.

2



Locate the exact starting and ending points of all the scenes that you want to edit into a finished movie onto another cassette tape. Make a log with descriptions as well as starting and ending points of these scenes, and determine the order in which they are to be edited.

3

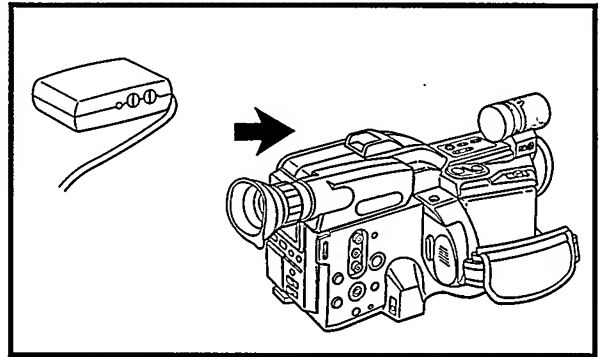


Perform the editing.

Attaching the VITC generator

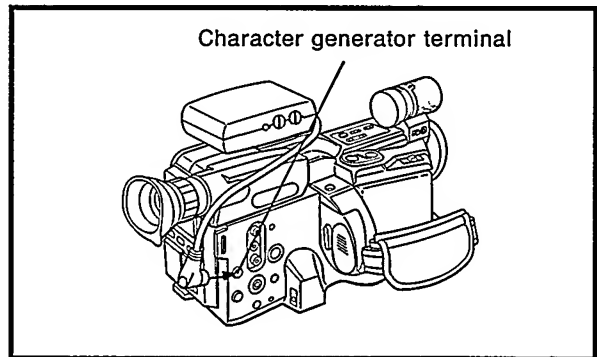
Use the shoe adaptor that is supplied with the unit.

1



Attach the VITC generator to the shoe adaptor.

2



Insert the plug of the VITC generator cord into the character generator terminal.

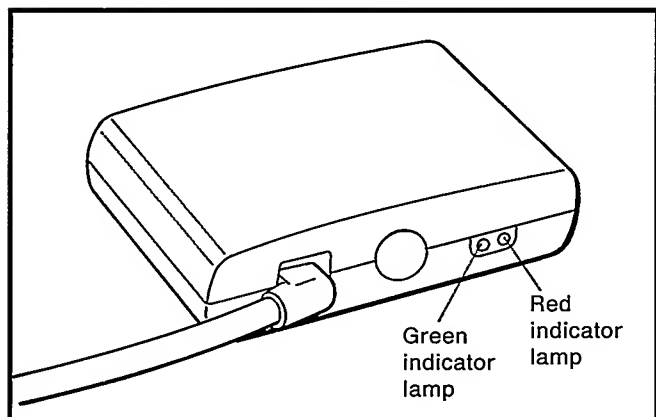
- Be sure to pass the connection cable in front of the electronic viewfinder (EVF).

Resetting the time code to zero

- When a new cassette tape is inserted into the Camcorder, the RESET key should be pressed. This resets the time code value to zero. If the time code is not reset, the VITC generator will continue counting up to a maximum of 24 hours. The time code then automatically starts from zero—perhaps in the middle of a cassette tape.
- An internal battery ensures that the last time code value before the recording was interrupted is always retained in memory. Thus when camera recording is resumed later, the time code sequence continues from the point where it was halted, even if the Camcorder was switched off or the VITC generator was disconnected from the Camcorder in the meantime.

Indicator lamps

- The green indicator lamp "GEN" is lit while the time code is being recorded together with the video signal.
- The red indicator lamp "BATT" lights up when the battery is nearly exhausted.



Cautions for making camera recordings with VITC signals

To ensure that the desired scenes can be found during editing, the time code must be recorded continuously without gaps.

1. Provide a leader for each video cassette. Leave the lens cover on the camera lens and start recording with the VITC generator connected. Let the Camcorder run like this for at least 20 seconds.
2. Each time you start the Camcorder, small jumps may appear in the timecode. These jumps would make editing of the first frames of a scene difficult. Thus get into the habit of always starting the camera 5 seconds before the actions you wish to record actually start.
3. Do not wind the tape in the video cassette forwards or backwards after taking a shot. The successive shots must be recorded in continuous sequence.
4. Do not use the Camera search or Rec review function.
5. Never make new recordings over parts of a recorded original cassette.

Battery replacement

The battery in the VITC generator has a life expectancy of 5 to 7 years.

If the red indicator lamp "BATT" lights up, there is still enough battery power to continue the timecode recording until the end of the inserted video cassette. However, before starting to record on the next cassette, have your video dealer insert a new battery.

S-VHS format



This format ensures high resolution and high picture quality by using high performance S-VHS-C video cassette tapes.

For recording

A : Auto position

- On S-VHS-C cassettes, recordings will automatically be made in the S-VHS format.
- On VHS-C cassettes, recordings will automatically be made in the VHS format.

OFF : For recording in the conventional VHS format on an S-VHS-C cassette.

When using VHS-C cassettes, the recording is made in the VHS format irrespective of the selected recording format.

For playback

It is not necessary to select the format.

Note:

If a cassette recorded in S-VHS is played back on a conventional VHS Camcorder or VCR, it is not possible to obtain a playback picture.

Hi-Fi (Stereo) sound

Stereo sound can be recorded on the Hi-Fi audio track via the built-in stereo microphone. At the same time, mono sound is recorded on the normal sound track, making it possible for a tape recorded on this Camcorder to be played back on a mono-type Camcorder or VCR.

Index signal (VISS)

The recording of index signals at the beginning of and during recordings makes possible the use of the VHS index search or the intro scan function when playing back the tape on a VCR equipped with these functions.

An index signal is recorded when one of the following operations is performed.

- When recording is started for the first time after the Camcorder is turned on.
- When recording is restarted after the cassette is exchanged or the tape is played back.

In each of these cases, the "INDEX" indication will flash for a few seconds in the electronic viewfinder (EVF).

- When recording index signals, space the signals at least 5 minutes in the LP mode and 2 minutes in the SP mode.

Supplemental information

What is “colour temperature”?

Light is composed of various colour components in different proportions. A relationship exists between the temperature of a light source and the colour components of the emitted light; as the temperature rises, the colour of the light varies from red, orange, yellow, white to blue in that order. “Colour temperature” is a value that expresses differences in colour among light sources, measured in Kelvin. Bluish light has higher colour temperature than reddish light.

What is “white balance”?

Making the colours look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for colour temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colours correct. The Camcorder can perform automatic white balance adjustment in the full-auto mode. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colours, therefore, sufficient illumination is essential.

What is “illuminance”?

“Illuminance” (also called ‘luminance’) is the intensity or brightness of reflected light, expressed in lux. The Camcorder is designed to provide best pictures under the conditions of a 700-lux illuminance, although shooting is possible all the way down to 9 lux. To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

How to get good colour pictures

The simplest way is to provide sufficient lighting (close to the camera’s reference illuminance) and accurately adjust the camera to the colour temperature of that lighting. If light sources of different colour temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colours of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same colour temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Colour temperatures of various artificial lighting

Type of illumination		Colour temperature
Tungsten lamp for home use		2,800 K
Tungsten lamp for photographic use		3,200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5,000 k
Fluorescent lamp	Warm white	3,500 K
	White	4,500 K
	Daylight type	6,500 K

Illuminance chart

- The values on this chart are approximated to give you a rough reference.

ND filter desired	Unit: Lux	Range for practical use	Lighting desired
	100,000 –		
Range for practical use	10,000 –	● Clear sky, mid-day, under sunlight (100,000) ● Clear sky (10:00 a.m.) under sunlight (65,000) ● Clear sky (3:00 p.m.) under sunlight (35,000) ● Cloudy sky (mid-day) under sunlight (32,000) ● Cloudy sky (10:00 a.m.) under sunlight (25,000) ● By the window during the afternoon (3,500)	
	2,000 –		
	1,000 –		
	600 –		
	500 –		
Lighting desired	100 –	● Cloudy sky (one hour after sunrise) (2,000) ● Clear sky (one hour before sunset) (1,000) ● Counters at department stores (500 — 700) ● Bowling centre (500) ● Office under fluorescent light (400 — 500) ● Library (400 — 500) ● Direct light of a flashlight at 1 m distance (250) ● Streetlights at night (150 — 200)	Minimum lighting for an object
	80 –		
	15 –		
	10 –		

In case of difficulty

Symptoms	Check points
Power source	
— The power does not turn on.	● Is the power supply unit correctly connected to the Camcorder?
— The power turns on, but it turns off again immediately.	● If the battery pack is exhausted, replace it with a fully charged one. ● If condensation has formed, wait until it has dissolved.
Camera recording	
— The power is on, but no picture appears in the EVF.	● Is the lens covered with the lens cap?
— Camera recording cannot be performed.	● If the tab of the cassette is broken out, cover the tab hole with adhesive tape.
— The Picture is not clear.	● Is the eyepiece correctly adjusted to your eyesight? ● Is the lens surface dusty?
— The auto focus system does not provide optimum focus adjustment.	● Is the focus mode selector set to "AUTO"? ● For shooting conditions where the "AUTO" setting of the focus mode selector cannot provide optimum focus adjustment, set the selector to "MANUAL" and adjust the focus.
Playback	
— No playback picture is reproduced.	● Is the connection to the TV set correct? ● Is the TV set turned to the video playback channel?
— The colours are not correct.	● Is the colour adjustment of the TV set correct?
— The playback picture is not in colour.	● Adjust the tracking. ● If the tape is old, use a new tape.

Specifications

Power source	: DC 6V
Power consumption	: Recording mode 8W (Battery operation)
Video recording system	: Rotary four heads, helical scanning system
FM audio recording system	: Rotary four heads, helical scanning system
Tape speed	: SP; 23.39 mm/s LP; 11.7 mm/s
Tape format	: S-VHS-C/VHS-C tape
Recording/playback time	: 45 min. with EC-45 (SP) 90 min. with EC-45 (LP)
VIDEO	
Television system	: CCIR; 625 lines, 50 fields PAL colour signal
Modulation system	: Luminance; FM azimuth recording Colour signal; Converted subcarrier phase shift recording
Output level	: VIDEO OUT (PHONO); 1.0 Vp-p 75 ohm unbalanced S-VIDEO OUT terminal; 1.0 Vp-p 75 ohm unbalanced
AUDIO	
Input level	: MIC IN (M3); -70 dB 4.7 kohm or more unbalanced
Output level	: AUDIO OUT (PHONO); -8 dB 600 ohm unbalanced
Audio track	: 1 track (Normal-mono only), 2 channels (Hi-Fi sound- stereo)
Image sensor	: 1/2-inch CCD image sensor
Lens	: 6 : 1 Power zoom lens with MACRO function Auto iris Auto focus system F 1.2 (9 — 54 mm) Front diameter: 49 mm
Viewfinder	: 2/3-inch electronic viewfinder
Standard illumination	: 1,400 lux
Minimum required illumination	: 9 lux
Video horizontal Resolution colour	: S-VHS: More than 400 lines (S-Video OUT) VHS; More than 250 lines
Signal-to noise ratio	: Video; More than 43 dB (SP) Audio (Hi-Fi): More than 47 dB (SP) (Normal); More than 43 dB (SP)

Audio frequency	
Response	: Hi-Fi; 50 — 20,000 Hz (SP) Normal; 80 — 8,000 Hz (SP)
Operating temperature	: 0°C — 40°C
Operating humidity	: 20% — 80%
Weight	: Approx. 1.0 kg (without battery pack)
Dimensions	: 107.9 (W) x 128.5 (H) x 311.5 (D) mm

AC adaptor SBC5420

Power Source	: AC 100 — 240 V, 50—60 Hz (Automatic voltage adjustment)
Power consumption	: 25W
DC output	: DC 6 V 1.8 A (Camcorder) DC 6 V 1.34 A (Battery pack charging)
Weight	: Approx. 0.4 kg
Dimensions	: 70 (W) x 58 (H) x 178 (D) mm

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

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- Ⓓ **GERATE-KENNKARTE** Diese Karte ist, zusammen mit den Garantiebestimmungen, die Ihr Händler Ihnen aushandigt, Ihr Garantieschein für dieses Gerät
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